THE CANONS OF INDIAN ART

or

A STUDY ON VĀSTUVIDYĀ

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PREFACE TO THE SECOND EDITION

THE 'Study on Vāstuvidyā' has been revised and enlarged in this new edition. As the Vāstuvidyā includes texts on Sculpture, Painting, Iconography and even a few minor arts and crafts, I have included in this edition a chapter (Chap. XXX) on those topics. In presenting this chapter, I cannot claim much originality. The general public is still not very familiar with the texts on Indian architecture and sculpture and hence in this chapter I have given a summary of the contents of many of the important texts. The canons of Indian painting have further been re-explained by me in order to show how they are equally applicable to the art of sculpture. The texts on Indian sculpture naturally relate more to iconography and hence I had to deal mostly with that topic. I am therefore much indebted to the famous book (The Development of Hindu Iconography) of Dr. J. N. Banerjea who was my Guru in this subject. I did not hence treat many matters in detail because there was nothing new to be said. The readers will judge if my presentation will be of help to them to have a full view of Indian Vāstuvidyā including the texts on architecture, sculpture and painting. I hope this will justify the new title of this second edition 'Canons of Indian Art'. The chapters on architecture have been revised and slightly modified in the light of new books written on the subject. Two appendices (Hand I) and five Tables (VIII—XII) are also newly added to clarify the chapter on Sculpture and Painting.

In spite of best attempts a few printing mistakes have crept in for which I beg pardon of the readers (See List).

PATNA, AUTHOR
June, 1963

PREFACE TO THE FIRST EDITION

THE book is the fruit of my labour as Research Scholar of the Government of Bengal during the years 1923-1926, when I was deputed to the Varendra Research Society, Rajshahi, to work under the Late Akshaya Kumar Maitra, C.I.E. But the researches made by me in that capacity represent a very small fraction of what is to be found in the present volume. Many new books on *Vāstuvidyā* have since been discovered, and it is with the help of these that I have been able to trace the development of *Vāstuvidyā* and allied subjects. I shall be failing in my duty if I do not at the very outset acknowledge the debt I owe to the Government of Bengal, to the V. R. Society of Rajshahi and to the Late Gurudeva A. K. Maitra for their kindly affording me opportunity to study the subject.

In writing the book I had to struggle against odd circumstances, such as the difficulty in securing a good press and untold domestic difficulties. Notwithstanding them I have rushed through in the hope that the materials I have been able to collect and collaborate would be placed before the world of letters so that I may, if necessary, revise my opinions in the light of any criticisms I may receive. In spite of my best efforts, there have crept into the book a number of mistakes, some of which have been duly corrected in the attached list of errata.

I must acknowledge my debt to Prof. S G. Mukherjee, M.A. of the B. N College, Patna, for having very kindly gone through a portion of the manuscripts. I also should thank the United Press of Patna for making their best efforts to print the book quickly and for the accommodating spirit and consideration they have invariably shown.

I shall deem my labour amply repaid if the world of scholars is attracted to the study of this important, but so long neglected branch of Indian culture, and offer helpful and constructive criticisms.

PATNA
January 1947

T. P. B.

INTRODUCTION (FIRST EDITION)

THE Indian *Vāstuśāstra* or the Canons of Indian Architecture is a field of study in which very few scholars have worked in India or outside. Ram Raz was the first to draw the attention of scholars to this very important branch of Indian *Vidyās*. He was followed by Dr. P. K. Acharya whose contributions have been monumental. The publication of the *Mānasāra* and the Dictionary of Hindu Architecture has thrown further light on the subject. Dr. Coomaraswamy, Prof. K. R. Pisharoti, Mr. O. C. Gangooli, Dr. Stella Kramrisch and several other scholars have widened the bounds of our knowledge.

From the time of Ram Raz to this day most of the workers in this subject have concentrated their attention on only those texts on *Vāstuvidyā* which have been discovered in Southern India, the reason being that most of the available books on the subject have come from the South. In Northern India, topics relating to *Vāstuvidyā* were found in fragmentary form in the Purāṇas, and a few books of the 'Pratishṭhā' class or 'Nibandhas'. It is only recently that North Indian works wholly dealing with *Vāstuvidyā* have been discovered. Of them *Samarāṅgaṇa Sūtradhāra* is the most remarkable. Many mss. are still to be found in both the Northern and the Southern parts of India which should be critically edited. I have had the opportunity of consulting the ms. of *Hayaśīrṣa Pañcharātram* which is in possession of the V. R. Society, Rajshahi, which has been only partly printed. This is an invaluable North Indian work on *Vāstuvidyā* and needs a critical edition.

The absence of such books, therefore, had long prevented scholars from tracing the development of this branch of Indian culture. Dr. Acharya came to the conclusion that all the works on *Vāstuvidyā*, North or South Indian, were based on *Mānasāra*. Such conclusions cannot be upheld now. Though the dates of many of the available works are unknown, we have now been able to fix some landmarks

from where we may move backward and forward to find out the antiquity of the Indian *Vāstuśāstras*. *Bṛihat Saṃhitā* (composed in the 6th century A.D.), *Samarāṅgaṇa Sūtradhāra* of the 11th century A D. and *Īśāna-Śiva-Gurudeva-Paddhati* of the 11th century A.D. [because we know from South Indian Inscriptions that *Īśāna-Śiva-Gurudeva* was the preceptor of king Rajendra Choladeva I (1012-42) of the Chola dynasty] have helped us now to form a chronology of the history of the *Vāstuśāstras*. The origin of Indian *Vāstuśāstra*, the different phases of its development, the relation of the North Indian *Vāstuvidyā* to that of the South, the relation of the Southern texts to one another and probable age of compilation of the various texts which form the main theme of this book, as far as I know, have not yet been discussed by any scholar. Many scholars have attempted to apply these canons to the interpretation of actual specimens of India architecture. But as they so long depended on *Mānasāra* and other allied South Indian texts, and as the technical terms used in these works have not yet been properly interpreted, they generally failed in those attempts. Similarly, many have attempted to classify Indian architecture; but even Dr. Coomaraswamy could not definitely make out the real thing from the confused and vague statements of the available works. I have therefore, tried properly to interpret the three terms 'Nāgara', 'Drāviḍa' and 'Vesara' and to find out the real classes or orders into which the Indians themselves divided their architecture.

The method I have followed is first to make an analytical study of the references to Indian architectural matters available in various Indian works, and then to build up a theory. In the first nine chapters, therefore, I have collected the important references from the works of the Vedic period and those of later periods. This has been done by many previous writers, but, as will be noticed, I have paid more attention to the references which may help us to trace the gradual development of *Vāstuvidyā*. Scholars have so long held that *Vāstuvidyā* developed in India in the third century or in the sixth century A.D. But I have shown in Chapter X that long

before that period, India had produced at least twenty five writers on *Vāstuvidyā*, whose works, though lost to us, existed in India till at least the 10th century A.D. Then an attempt has been made to reveal the nature of *Vāstuvidyā* in the earliest period (Ch. XI). I have tried to show that *Vāstuvidyā* existed in India even in the second century B.C. (Date of Garga). The development of *Vāstuvidyā* has then been traced from the earliest period to the 15th centuy A.D. (Chaps. XII-XIII) and in this connection I have also attempted to fix the probable dates of some of the available texts on *Vāstuvidyā*. I have further shown that the sixth century was a significant period in the history of *Vāstuvidyā*, most of the available works having been composed in that period or the one following it.

The discussion about the age of compilation cannot be complete without a proper consideration of the matters dealt with in the various works. I have not thoroughly entered into the technical matters of Architecture which only can supply proper data for reaching definite conclusions regarding this matter. But I have proceeded by classifying the various styles (or orders) of Indian architecture and the treatises thereon. Scholars have hiterto recognised three orders of Indian architecture—viz. Nāgara, Drāviḍa and Vesara; but I have shown that this division is partially faulty and that there were various other orders of Indian architecture. These classifications have been dealt with in several chapters (XIV to XVI).

These classifications have thrown new light on the question of the age of the compilation of many of the available treatises. As Dr. Acharya regarded *Mānasāra* as the source of all the works on *Vāstuvidyā*, I have shown (Chap. XVII) that *Mānasāra* has really very little in common with other available texts, and that *Mānasāra* belonged to the Southern school and was a late compilation. The date of this valuable work has further been discussed in the following chapters (XVIII to XIX). A suggestion has been made regarding the reasons of the similarity between *Mānasāra* and the work of Vitruvius, the Roman writer on architecture. These

chapters have further shown that there were two principal schools of Indian *Vāstuvidyā*—the Northern and the Southern, a fact which has not yet been definitely proved by any scholar. The points of similarity and difference between these two schools have been next traced (Ch. XX). The points of similarity have been found to be due to the fact that all the Indian schools of architecture followed common fundamental principles which are essence of Indian architecture. These principles have been summarised in Ch. XXI.

In the next few chapters I have tried to indicate how far these architectural principles were actually followed by the Indian builders. In this connection I have developed the theory regarding temples, which was held by Mr. A. K. Maitra and M. Ganguli (Ch. XXII). The chapter on the 'Mithuna' (Ch XXIII) was published by me in the Rupam in 1926. I have included it here in order to show how architectural canons were carried out in practice in India. Doors form a very interesting subject for study regarding Indian architecture, and I have applied the canons to actual specimens (Ch.XXIV). This chapter further reveals that common architectural traditions were followed not only by the Hindus, but also by the Buddhists and the Jains of India. This has been further discussed in the later chapters (Chaps. XXVI-XXVIII).

I have also shown, perhaps for the first time, that the Indian traditions regarding the making of bricks are very old. Some other materials have also been considered in this connection (Ch. XXV and the Appendix). This chapter further supports my theory about the age of the compilation of the various texts.

The next three chapters (XXVI-XXVIII) should be read together. In discussing the origin of Indian temples, a very naughty problem of Indian architecture, I have tried to follow the Indian treatises and to draw such conclusions as naturally follow from the study thereof. I have discussed the various prevailing theories regarding the origin of the North Indian temple style, as well as that of the so-called Dravidian style. I have shown that their origin cannot be

traced from chariots, as held by several scholars. Nor can the theory of the origin of the South Indian temples from Buddhist Chaityas or pre-historic dolmens be supported by me. I have suggested that the North Indian temples had originated from the ancient 'Prāsāda' type of residential houses of North India, and the Dravidian buildings had their prototypes, both in Northern and Southern India, in the 'Vimāna' class of buildings which were different in form from the Prāsādas.

While discussing this matter I have sugested that there was a time when temples in the Deccan and South India were built in the North Indian fashion. That was the form of the Pre-Pallava temples in the south, modified to a certain extent by peculiar local traditions. This naturally led me to discuss the contribution of the Drāviḍas and other ancient non-Aryan races of India to Indian architecture (Ch. XXVII). I have also tried to adduce some reasons for believing that the Asuras of ancient India were Dravidians or Dānavas and that their culture spread over different parts of India till as late as the Maurya period. It was they and another ancient people—the Nāgas—who helped the development of stone architecture in India (Ch. XXVIII), which existed in a very early time in India, but was adopted by the Hindus not earlier than the Second century B C. These are daring propositions and I have tried to support them with evidences from various sources. The problem of the origin of the Nāgara style of architecture has also been, for the first time, tackled by me in the same chapter. This style was evolved by Garga with the help of the Nāga (king?) Śeṣa. This partially supports the view of the Late Dr. Jayaswal who attributed the origin of Nāgara architecture to the Bharaśiva Nāgas. But my reasons to support this theory are quite different from those given by him. I may mention here, which I have not done in the book, that the Nāgara style of architecture is related to the Nāgara style of painting mentioned in the Vishṇudharmmottaram. We know from the Chitralakshaṇam of Nagnajit that painting was first introduced into the world by Nagnajit who was perhaps a king of the

Asuras (or allied to them) with the help of Viśvakarmā. It was this painting which was perhaps called the Nāgara painting, and was thus related to Nāgara architecture which was a joint product of the Viśvakarmā school and the school of the Nāgas.

The chapter XXIX contains practically a summary of all my conclusions. I have therein suggested a new line on which we may divide the history of Indian architecture from the earliest times, as well as the history of the Vāstusāśtra. It has also been suggested there that Vāstuśāstra was inseparably connected with the political history of India; its decline coming along with the decline of the Hindu royal power. The chart attached to this chapter will elucidate the points discussed therein.

What has been said above will, I hope, indicate what portions of this book are original in character. It is needless to say that what I have said are but mere suggestions based upon the study of various works dealing with Indian art traditions. My conclusions should not be taken as dogmatic ones. I have however, tried to meet all possible arguments which might be put forth against my findings It may be hoped that the theories propounded here may show the way to furture workers in the field.

I have added several appendices at the end of various chapters. They were so placed, because the matter discussed therein arose out of the discussions in the preceding chapters. References have been given in the margin of the texts, as as well as in the footnotes. It will be noticed that many of the original verses or quotations referred to in the footnotes have all been put at one place at the end of the book. Only those original texts which I have considered essential for proper understanding of my contentions have been introduced In many places the references have been omitted altogether, as there was no need for them in respect of matters well-known to the students of Indian architecture. I hope this will not cause any serious difficulty. The Tables attached will be of great help in making a comparative study of the various texts on *Vāstuvidyā*. In many places, names of

books have been written in an abbreviated form. I do not think readers will feel any difficulty in making out the proper name, though the abbreviations have not been always uniform in character. I have not, therefore, given a list of Abbreviations. The books have been mentioned so often that any initial of their names will be sufficient for understanding them.

In conclusion, I hope that the book will show a new line of investigation into the study of Indian architecture, in spite of its innumerable shortcomings.

CONTENTS

CHAPTER I

ORIGIN OF ARCHITECTURE IN INDIA

THE actual origin of architecture in ancient India is enveloped in an impenetrable shroud of mystery which cannot be removed by the present state of our knowledge No available source, literary or monumental, relates to it, nor the mythological accounts of the Puranas offer a satisfactory solution The earliest references as well as the earliest monuments disclose a stage which can hardly be called primitive, much less initial In the accounts available from the Rigveda, the Brahmanas, the Epics, the Pali Jātaka stories and the Arthaśastra of Kautilya, we find an advancement in material, style and decoration which must be assigned to a period long after the initial stage The very few existing monuments, e g the Jarasandha Ki-Vaithak at Rajgir, the enclosure of the temple at Nagari, the Pipiwa stupa the columns of Asoka and other buildings of the Mauryan period, also testify to the developed character of Indian Architecture The discoveries at Mohenjodaro in Sind purport to take us some three thousand years earlier but whether that civilisation had in any way influenced the later Indian arts is still to be solved Before more light is thrown from that direction, we must turn to the literary evidences to find out the source of Indian Architecture

The earliest references show that the building of a dwelling had already come to be associated with fairly well-established rituals Not only so, but even some of the forms of constructions were sought to be explained by symbolical or allegorical interpretations Thus the Śatapatha Brahmana (III 6 4 27) and the Aitareya Brāhmana (VI 1) explain the octagonal form of the Yūpas or sacrificial stakes by saying that "it was the Vajra (thunderbolt) and the Vajra was eight-sided" The Śāṅkhāyana Gṛhya Sūtra (III 3 2 9) says "When the

house has been built conformably (to its proper dimensions) he touches the post, the two to the east with the words Truth and Faith, those to the south with Sacrifice and Gift, those to west with Strength and Power, those to the north with The Brahmanas and the Kshatriyas, and adds the following, Fortune the pinnacle, Law the chief post, Day and Night the two door jambs, the Year the roof This tendency found in this very early ritualistic literature of India affords some support to Mr Havell s theory who has attempted to explain the forms of Indian architecture by symbolical interpretations attached to them Whether such interpretations can really explain their origin cannot be asserted but these explanations conclusively prove that at the time when these explanations were put forth the real source of the forms had been forgotten, and building of houses being closely associated with well established rituals everything was sought to be explained with reference to religion These rituals and the symbolism attached to the various forms of architecture thus undoubtedly point to the remotest antiquity of their origin

The rituals connected with architecture are to be found in the Grhya Sutras the Puranas and the Tantras the Vastu Śastras and its later compilations till the fifteenth century A D From the earliest Vedic age to our own times, a Vedic hymn used to be and is recited in connection with these rituals The ceremony is now commonly called the Vastuyaga It consists in the worship of the Vastu purusha or the Vastunara not only in connection with building operations but also in connection with other ceremonials

These rituals show that their original object centred round the cleaning and the purification of the ground selected for the building operations Thus the Āśvalayana (III 3 7) the Khadira (IV 2 6 13) the Gobhila (IV 7) and the Āpastamba (VII 17) Grhya Sutras lay down elaborate rules for selecting the ground and the Hiranyakeśi Grhya-

R gveda VII 54 1

Sūtra (I. 8. 17-29) cites the process for propitiating the ground. This ceremony of propitiation is called, in the Gṛhya Sūtras, the Vāstuśamana ceremony. The word Vāstu was literally interpreted thus "Vasanti prāṇinaḥ yatra", i.e. "(a place) where living beings reside". Later on it came to include not only the site but also the dwelling built upon it, and later still, bedsteads, the hammocks, thrones, chariots, images and painting.

The Rigveda hymn already referred to, invokes Vāstospati as the special deity supposed to preside over building sites. Here the word Vāstospati has been differently explained. One commentator took it to mean 'the lord of the building site'.[1] According to Devarāja Jajvā, Vāstu means the Antarīksha and Vāstospati indicates all heavenly deities. According to this view Vāstospati seems to have been taken as a general name for all the deities. While explaining the Rigvedic verse, Sayana takes Vāstu to mean a house According to him Vāstospati was the god who protected the house.[2] This meaning has also been accepted by late Monier Williams in his Sanskrit-English Dictionary.

Vāstospati was however one of the names of Indra the wielder of the thunderbolt and this word was taken as a synonym of Indra in all Sanskrit lexicons from that of Amara downwards. This earliest association of Indra as house protector with the rituals connected with building operations perhaps indicates the nature of the original structure which necessitated a prayer for protection from the wielder of the thunderbolt. The other gods worshipped along with Indra were Soma, Yama, Varuna and Vāyu.[3]

The deity now worshipped in building operation is not however, Indra, but a demi-god named Vāstu-purusha or Vāstunara, the mythical origin of which is found in all treatises dealing with architecture. But the interesting fact is that, though the object of worship is Vāstu-nara,

[1] 'Vāsto grihakshetrasya pati-radhishṭhātā'
[2] 'Vāstospati gṛhasya pālayitṛi deva' (Rig Veda VII. 54. 1).
[3] Gobhila IV 7. 41; Hiraṇyakeśi 1. 8 28.

the hymn to Indra is still recited during the ceremony. This indicates the importance of the particular hymn for the builder of a house.

The details of this worship again seem to disclose a clue to the origin of building operations. Vāstu in the sense of the ground underneath a building is said to consist of either eighty-one or sixty-four padas. A square subdivided into smaller squares, nine or eight on each side, will make the total number of squares eighty-one or sixty-four,[1] with a central square, in each case, in the middle of which the diagonals meet. The point where the diagonals meet is the centre of the site. This central part of the site has been an object of special veneration from very earliest times. This site was, according to all texts, occupied by Brahmā. Vāstospati, therefore, appears to have been referred to Brahmā. Even in the Vedas, Vāstospati might mean Śiva, Brahmā or Indra. Gobhila (IV. 7. 27-41) enjoins the placing of the sacrificial fire in the middle of this site. Khādira (IV. 2-19) directs that the sacrifice of fat (of the animal) and milk-rice, should be performed here Āśvalāyana (II. 8) refers to the existence of a central post at this point. The idea of a central post inside the dwelling indicates that the primitive house was a construction over and around this post. The shape of the construction seems to suggest a close resemblance to a shady tree which provided shelter to the primitive man from the sun and rain, at a time when house-bulding was unknown.

Thus we may infer that the earliest building in India was made after the model of a tree. This is curiously supported by an account in the Puraṇas.[2] The passage in the Markandeya Puraṇa as translated by Mr. Pargiter rans thus:—"Living on mountains and by the seaside[3] they (men at

[1] Each of these squares had a presiding deity who was to be worshipped according to later Vāstuśāstras From this originated the system of placing figures of gods in the various directions of a temple.

[2] Vāyupuraṇa, Ch. 8. Mārkaṇḍeya P. (Ch. 49), cf. Brahmānda Puraṇa, (Ch. 8).

[3] From the context, the word 'sevinyo' seems to mean 'living in' rather than 'offering worship to'.

the beginning of the creation) lived wholly without habitations (v. 15). Strife sprang up in consequence; their faces felt cold and heat and hunger. Then for the sake of combination and resistance they made towns at first; and they resorted to fortresses in inaccessible deserts and wastes, in mountains and caves; also they industriously constructed with their own fingers an artificial fort on trees, mountains and in water (verses 34-36). As trees were their first kind of houses, so, with a remembrance of all that, those people built their houses. As some branches of a tree go in one direction and others go in another direction, and some rise upwards and some bend downwards, even so they fashioned the branches in their houses. Those branches became the rooms (Śālās) in the houses in consequence among the people (verses 52-54)." A similar account is found in the Samarāṅgaṇa Sūtradhāra (Ch. 6) which is also quoted below —

"In the Krta Yuga, men used to sport with the gods in groves, hills, rivers, lakes and forests, (verse 3). They secured all sorts of enjoyable things from the Kalpa-druma (or the Wishing-tree) (v 15). Having lost the Kalpa tree they began to dwell on other trees (v. 22). But gradually they were disgusted with trees and began to chop them off with stone and began to build houses. Remembering the form of the Kalpa-druma, they constructed their houses consisting of one, two, three, four, seven and ten Śālās (v. 35-36)".

This account which we find in the Samarāṅgaṇa Sūtradhāra corroborating the one quoted from the Markaṇdeya Puraṇa and the importance attached to the central post, as evident from the rituals, suggest that the primitive building, devised on the model of a tree was one with a central post as the trunk and the thatches in all directions as the out-stretched branches of a tree. This flimsy character of the building also necessitated invocations to Indra and other gods of wind and rain.

This earliest connection of primitive dwellings with tree appears all the more probable as we find that the vege-

table kingdom was the first to be utilised for all necessary materials of house-building. The central post was beyond doubt the trunk of a tree. The rules relating to the rituals directed that the post should be placed into holes previously parlty filled up with the certain aquatic vegetables, presumably as a protection against white ants and damage by fire. Thus the Āśvalāyana Grhya Sūtra (II. 814) directs that "into the pits in which the posts are to stand, he should have an Avakā i e (the water plant called) Sīpāla put down, then fire will not befall him". The classification of pillars, in later times, into the Vishṇukāṇḍa (pillars with eight faces), Brahmakānda (pillar with four faces), Rudrakānda (round pillar) and the like, points to the trunk of the tree (called kānda) being synonymous with the shaft of the pillar.[1] Again the door jambs were called the Śākhās (the branches) from the use of branches of trees in their construction. The lintel of the door-way was similarly known as 'udumbara' or udumbara in Sanskrit and urummāra in Pali (Jātakas), evidently from the use of the fig wood in making these pieces The ropes were made out of the Kusa grass (Śatapatha Brāhmana, III. 7. 1-19). All these facts seem to indicate that wood formed the usual material for the construction of buildings in the initial stage. The earliest references in the Pali Jātakas, the Arthaśāstra and the Ramayana also show that buildings were generally made of wood.

That wooden architecture prevailed in India for a long time was concluded by scholars from the fact that even in later ages when other materials came to be used, the buildings were made after their wooden models. The oldest monumental relics still available in the numerous cave dwellings in various parts of India bear unmistakable traces of these models. The pillar, the arch, the door and the mouldings of the early caves all disclose their indebtedness to structural edifices built with wooden materials. Thus writes Sir John Marshall, "These materials

[1] The actual words used is 'Kānta' Some scholars think this to be a later variation of the word 'kāṇda'.

left their character deeply and permanently impressed on Indian Architecture. From the use of the bamboo came the curvilinear type of roof which was afterwards reproduced in cut timber and subsequently in stone, and from which were evolved the familiar chaitya arches used over doorways and windows. Log capitals were imitated in stone, and the more finished timbering of walls, roofs and gateways in the same material, every detail down to the nail-heads being copied with sedulous care and accuracy by the masons of later days. As a protection against destructive insects, wooden posts were set in jars of earthen ware, and from these resulted the 'pot and foliage' base, so beautifully developed in the Gupta age."[1] It should not be inferred, however, as some scholars have done, that the stone buildings possessing traces of such wooden construction are to be looked upon as the earliest specimens of construction in stone. When for the first time wood gave place to harder materials cannot be ascertained at the present state of our knowledge of Indian Archaeology The only conclusion possible is that wood and the vegetable world supplied the materials first utilised by the Indians in their building operations; and their use was so universal as to leave its trace long afterwards, even in building of as late a period as that of the Orangal Kirti Stambha (thirteenth century A.D.).[2] (See Chap. XXVIII).

Besides this investigation into the earliest possible nature of Indian architecture, the origin of some of the later forms of architectural constructions may be traced from references in the early literature of India. Attempts in this direction have been made by several scholars of whom Mr. Havell's name is most noteworthy. His symbolical interpretations of the various forms of Indian architecture have already been referred to. Even in the above quotation from Sir John Marshall's writing, we find an attempt to explain the Gupta bases by referring to an alleged early custom. It may be noted that most of the Indian pillars

[1] Cambridge History of India, Vol. I, p. 617.

[2] Even nowadays in Bihar brick-buildings are supported on wooden posts.

are octagonal and even early literature such as the Pali Jātakas, refers to such octagonal pillars. The explanation for this inclination on the part of the Indians to make the pillars eight faced may be sought in the injunctions of the Brāhmaṇas to make the Yūpas or stakes eight sided (vide Ref. to Śatapatha and Aitareya Brāhmaṇas above).[1]

The plans of Indian buildings might have arisen from a similar direction in the Gṛhya Sūtra. Thus Gobhila (IV. 7. 12-13) says "(The site of the house) should have the form of a brick or it should have the form of a round island" i.e. it should be either square or rectangular (Āśvalāyana II. 8. 9-10) or round. It is perhaps from these injunctions with regard to the site, that the buildings also took their forms. Most of the Indian temples, at least the early ones, are square or rectangular in ground plan. Round temples, however, were not unknown in ancient India which is apparent from their representations on the Bharhut rails and from the remains of such ones excavated by Prof. Bhandarkar at Nagari.[2] Another round temple made of bricks and having wooden pillars has been discovered at Bairat (Jaipur).

The Śatapatha Brāhmaṇa again, while laying down the rules for the construction of a Śmaśāna or burial mound, relates some interesting legends, regarding their shape and some other features. As these Śmaśānas were the prototypes of the Stūpas, afterwards so favourite a construction with the Buddhists, these legends well deserve attention. Thus the Śatapatha Brāhmaṇa says[3] "four cornered (is the sepulchral mound). Now the gods and the Asuras, both of them sprung from Prajāpati, were contending in the four regions. The gods drove out the Asuras, their rivals and enemies, the regions, and being regionless, they were overcome. Wherefore the people who are godly make their burial places four cornered whilst those who are of

[1] For origin of other matters relating to pillar see later vedic injunctions (Ch. III).

[2] "Excavations at Nagari" —Memoirs of Arch. Survey, No. 4.

[3] Śatapatha Brāhmana XIII. 8. 1-4.

the Asura nature, the Easterners and others make them round." In the second Brahmaṇa the same legend of the fight between the Devas and Asuras is related, after which it is said, "Those who are godly people make their sepulchres so as not to be separate from the earth, whilst those people who are of Asura nature, the Easterners and others, make their sepulchral mounds so as to be separated from the earth, either on a basin or on some such thing." It seems most probable that the legend related here about the fight between the Devas and the Asuras is based on some long forgotten strife between the Indian Aryans and the Assyrians of the soil.[1] Recently discovered civilisation on the site of Mohenjo-daro has been spoken of by some scholars as being related to that of the Sumerians, the forerunners of the Babylonians and the Assyrians. Thus the problem of the probable connection between the Assyrian and the Indian civilisation must wait to be solved by future excavations on that site. Before that can be done, from the legends of the Śatapatha Brāhmaṇa we may infer that the round shape of the Buddhist stūpas and the bases under them were imitations from those constructed by some non-Aryans in India, whereas the Hindus always built square stūpas without any such base.[2] The earliest stupas indeed has no base and the square stūpas of the Hindus were found by Prof. Bhandarkar during his excavations at Nagari. Another reference in the same Brāhmaṇa seems to be very interesting. Thus it is said, "They now fix pegs round it. One in front, a Śamī one on the left, one behind, of Varana, a Vṛtra peg on the right". Are we to take this custom as the source of the later custom of erecting four toranas or gateways on four sides of the Buddhist stūpas?

Thus the ancient rites and some of the customs suggest to us a probable origin of Indian architecture. The invocation to Indra and the other gods of rain and wind, the

[1] Vide "Asoka" by Prof. Bhandarkar, p. 217-19.
[2] The matter has been dicussed again in Ch. XXVII.

reference to the central post in the room, the placing of aquatic vegetables in the pits for such posts, references in the Mārkandeya Purana and the Samarāngana Sūtradhāra and the architectural terms of later ages and even the earliest available monuments all go to suggest the character of the primitive building scheme of India Other rites or legends have also been referred to as pointing to the origin of several forms of India architecture The development was one 'from the log cabin to the white house", from the humble cottage of leaves to ostentatious temples and palaces

Chapter II

ARCHITECTURE IN THE RIGVEDIC PERIOD

THE importance of the Rigveda as the earliest available record of Indian civilisation is universally admitted. "Though the secular poems" writes Macdonell, "are very few in number, the incidental references are sufficiently numerous to afford materials for a good picture of social condition of India". The study of the Rigveda is, therefore, essential for a proper understanding of ancient Indian architecture.

The very first point to be noted is that architecture had already come to be closely associated with religion; and the building of a structure was recognised as a religious act The Vāstu or the site of a building is conceived as being presided over by a deity called "Vāstospati" invocation to whom must have been necessary whenever a new house was built. Two chapters in the seventh Mandala deal entirely with invocations to that god (VII. 54 and 55), where he is prayed for an excellent abode (svābesa) free from disease and full of wealth and cattle. In another verse he is propitiated so that a pillar may be strong and firm in its place (VIII. 17. 14). In a hymn in the 55th chapter of the VII Book, Vāstospati seem to have been identified with Indra (verse 3). The identification of these two gods was accepted in later times in the lexicons. Vāstospati is again identified in the Rigveda with Tvastṛn, the carpenter of the gods (V. 41. 8). Later Śilpa Literature describes 'Tvasṭā' as the master architect. Thus according to a tradition mentioned in the Mānasāra, he was the son of Viśwakarmā (cf. Śilparatnam). The disciples of Tvastṛn were the Ribhus who are also invoked in many of the hymns. Viśvakarmā, famous in later literature as the architect of the gods, is not referred to in the Rigveda as having any special connection with house-building. He is invoked as the creator of the universe as a whole (X. 6. 81-82) and

it is quite natural to suppose that the later tradition about Viśvakarmā had its origin in the Rigvedic verses. In addition to these gods, the epithet, Vasu (the giver of a dwelling) or "grhapati" (Lord of the house) was attached to many other gods such as Agni, Soma, the Maruts and so on. The invocation to these gods was undoubtedly necessary at the time of a special ceremony performed before entering a new house. This ceremony is hinted at in a hymn where it is said that "the wise, (first) honouring Agni, as they do a dwelling, worship him etc. "(I. 67.5). This simile shows that before a house was put to use, a worship was offered to it. These ceremonials in connection with building operations were elaborated in a later age and they are performed even at the present day, when the same old Rigvedic verses are repeated These ceremonials are described in detail in all works on Architecture, the Puranas and other cognate works. In the Pali Jātaka stories, the ceremonial is referred to as the "Pāsādamangalam". Worship of doors and of the sacrificial post (Rig. III. 8) further proves the close connection of architecture with religion.

From occasional references to prescribed measurements followed in building a structure, it may be inferred that building operation had come to be recognised as a system and not a haphazard action. A hymn has been explained by Sayana to refer to the system of making a piece of land slope towards the east (II. 15. 3). The Gobhila Gṛhya Sūtra while laying down rules for the selection of a site directs thus "Let him select the site for building his house on even ground on which the waters flow off to the east or north" (V 7. 3). The Rigvedic hymn, therefore proves the existence of rules for selecting the site for a building, even in the Rigvedic period.

The ceremonials connected with building operations, the measurements followed, and the rules for the selection of the land, thus, form the nucleus from which the Indian science of architecture, later on incorporated as the Vāstuvidyā, had developed. Another reference in this connection

is very interesting. In an invocation to Mitra and Varuṇa (VII. 33. 13) it has been said that Mitra and Varuṇa poured a common effusion in a waterjar from the midst of which rose 'Māna' and Vaśishṭha. The birth of Māna from a jar shows, and Sayana actually says, that Māna was another name of Agastya who is famous as "Kumbhajāta" i.e. born from a kumbha (jar). This story is related in the Matsyapurana, ch. 61. Agastya was acknowledged by later writers on architecture as a preceptor of the Vāstuvidyā, and from the name Māna (which means measurements) given to him in the Rigveda, it may be inferred that Agastya might have been connected with architecture even during the Rigvedic age.[1] Vaśishṭha was also known as a preceptor of Vāstuvidyā. He might have been another Vaśishtha.

Nearly thirty different words were used in the Rigveda to refer to dwelling places, but very few of them give any idea about the characteristics of a building. The word "chhardi" occurs frequently and must have denoted the roof of a house. In one hymn (IV. 2. 5). there is a reference to a "Sabhā" which may or may not indicate any edifice of that name but may simply mean an assembly. The expressions "Durona", "Duryasu" have been derived from the word "Dur" meaning a door and therefore must refer to structures having doors.

There are no references to the materials used in constructing the houses. Tvaṣṭā and Ribhu who, as has already been said, were the master architects, are said to have constructed many small articles for Indra. Thus Tvaṣṭā sharpened (Tataksha) the far-whirling Vajra or thunderbolt of Indra (I. 32 2.) and made a spoon for him. In all the references the verb used is "Tataksha" which means chipping of wood. But other references show that the word meant not only chipping of wood but also working in other

[1] The famous treatise on Architecture called the Mānasara may thus be a summarised version of Agastya's works on Architecture. Another work the sakalādhikāra is attributed to Agastya, (Ram Raz). The matter is further discussed in Chapter XVIII.

materials. Thus Tvaṣṭā framed the well-made, golden and many-bladed thunderbolt for Indra (I. 85. 9.). In another hymn the Vajra is called 'Āyasa' or metallic (X. 48). Tvastā was thus not only a carpenter but might have been a worker in gold and other metals. The verb 'Tataksha' therefore need not be taken to mean chipping of wood only. From references to Tvaṣṭā, therefore, it is evident that the master architect was a carpenter and must have used wood as the general material for a building, but other materials might as well have been used. The word 'Takshaka' is explained in later works on Architecture to mean one of the masons engaged in building operations, his especial duty being to give a thick or fine shape to the stone, wood or the bricks used in a building.[1] From the references in the Rigveda, therefore, we may conclude that wood was the chief material for constructing a building.

A more substantial and ostentatious structure must have been hinted at by the word "Harmya" which occurs at least twelve times in the Rigveda. Thus Vṛtra was detected, or placed, in a dark "Harmya" (Tamasi Harmya) (V 32. 5). The shutting up of men's eyes rendering them stationary or unconscious is compared to the fixity or insensibility of the Harmyas (VII 55. 6). The expression "Innocent (Śubhra) as children residing in the (Paternal) mansion" (VII 56.16), perhaps indicates by the epithet 'Śubhra' the whiteness or shining character of the building as much as the innocence of the children The coming down of Sūrya's rays from above the sky has been implied by the expression "from above the Harmya" (Harmyebhyah) (VII. 76. 2) which perhaps indicates either the considerable height of the buildings of the Harmya class or its position on the top of a house. The meaning of the word "Harmya" is often found in later treatises to be "a room on the upper part of a house".[2] Indra is called a destroyer of the Harmyas, perhaps of the Asuras (IX. 71.4; 78. 3) Indra's strength in all the other

[1] Mayamatam, Ch V 20

[2] Buddhaghosa, commentary on Cullavagga, Samarāngana 18 9½.

hymns is praised with reference to his destruction of the strong cities (Pur) of the Asuras. The substitution of the word 'Harmya' for 'Pur' in this verse and the reference to Vṛtra's dark Harmya (see above), therefore, undoubtedly show the substantial character of the Harmya buildings.

The epithet "Dhruva" attached to a house (III. 54. 20. II. 41. 5 etc), to indicate its firmness is interesting on account of the fact that "Dhruva" was the name of a special class of building described in the later Śilpaśāstras.[1]

The strength and stability of the Rigvedic houses cannot be determined without a consideration of the Puras or cities referred to in many passages of the Rigveda. Indra is said to have destroyed the ninety-nine cities of the Asura Sambara. Sometimes there is no indication as to whom the city belonged In other places the epithets Dṛḍha (V. 19. 2), Drmhita etc. are used without the mention of the word 'Pura'. In some cases, these epithets may refer to the forts, the existence of which may also be inferred from expressions such as 'Durgāni', and artificial barriers (Kṛtrimas). The epithets and verb used, the latter always implying breaking by force, and the use of adverbs denoting application of force, prove that the Puras were so strong as to require the force of a god to demolish them. The epithet 'Ayasi' often applied to the Puras signifies, not the real existenc of iron forts, the strong nature of the fortifications. One single reference to the hundred cities made of stone (Aśmamayasi) occurs in Rigveda IV. 30. 20. Muir in his Original Sanskrit Texts (Vol. V., p. 454) remarks, "Even if we should suppose this was a mythological reference to the aerial cities of Asuras (cf. X. 67. 3), it might be received as an evidence that they had their prototype stone-built cities on the earth, a circumstance in itself by no means improbable in tracts of country bordering on the hills where stone is abundant". This passage shows that the walls, at least, of the fortifications were made of harder materials

[1] Viśvakarmaprakāśa, Ch. 2. 103.
Samarāngana, Ch 23. 6

than mere bamboo or planks. Cities with hundred enclosures or fortifications (satabhuji) are referred to in I. 166. 8; VII. 15. 14, which, according to Muir, "no doubt suggest the idea of forts consisting apparently of a series of concentric walls, as actually existing, in the country at that time". Another epithet "Śubhra" applied to the Pura, perhaps refers to the white-washed walls of the city or to some shining materials of which the walls or the houses were built

Whether stone-built (or strong) Puras refer also to the buildings therein being constructed of that material, cannot be definitely ascertained. Macdonell says "there is nothing to show that they (puras) were inhabited, much less that Pur even meant town or city, as it did in later times (Sanskrit Literature, p. 158, Macdonell). According to him the Puras were fortified enclosures erected at the time of some danger, without any houses in them. But several Hymns[1] may be taken to refer to the existence of private citizens in a Pur (city). The strong fortifications and the presence of civil population therein, if considered together, may warrant us to conclude that the Pura was neither an ordinary village nor a mere fortified enclosure without any private habitation The question arises is whether from the references to stone-built Puras we may also conclude the existence of stone-built houses in the Rigvedic period. The remarks of Prof. Wilson are just to the point. He says, "Whether the notion of masonry be confined to the walls or extended to the dwellings, it indicates familiarity with something more substantial than mere hovels" (Rigveda, Vol. III, Notes on IV. 30. 20)."[2]

Whatever materials might have been used in building the Rigvedic houses, many are the references which show that they were made on an established system, in bigger scales

[1] Rigveda; I. 24 189. VI. 2 7; IX. 107. 10

[2] If the ancient Mohenjo-daro people are identified with the Asuras of the Vedas, it indicates existence of brick-built and perhaps also stone built buildings in the Rigvedic period.

and affording more comforts than mere hovels. Thus "the invoker of the God Agni pervades the measured station of the altars (Parimita Sadma)". The eastern quarter is said to have been measured (Vimimāya Mānaiḥ) as is a chamber (II. 15. 3). The sacrificial stake is said to have been measured with a careful measurement (Sumiti Miyamāno). These references to the carefully measured structures prove the sense of symmetry and proportion of the Rigvedic Indians The extensive scale of houses is signified by epithets such as "Pṛthu", "Sāmpratha" (thick), Mahi, Vṛhat, Uru (great), Dirgha, Gabhīra (deep i.e., with reference to the width of a house) and so on. The house of Varuṇa is described as "having a vast area and having thousand doors in it (Sahasra dvāram)" (VII. 88. 5). In another place Mitra and Varuṇa are said to have remained in a firm (dhruva) elegant house, built with a thousand columns (sahasra sthūna). The house of Bhoja is compared to a tank (Puṣkarinīva Veśma) and is delightful (citraṁ) like the dwelling of the gods (X. 107. 10), which may refer to the decorations over the house (Otherwise the comparison with a tank does not become clear). The above references therefore prove the elaborate and artistic nature of the buildings of the Rigvedic period

There are several expressions in the Rigveda which have been explained by Sayana as referring to many-storeyed houses. Parjanya is invoked for granting a shelter (śaranam) and a house (Śarma) which is described as "having three Dhātus (Tṛdhātu)". The word "śarma", according to Sayana, means a house or happiness, and "Tṛdhātu" either three-sotreyed or "the three ingredients of human body". In another place the word "Tṛdhādu" is explained as "residing in three places". The uncertainty as to the meaning of this word, therefore, prevents us from coming to a definite conclusion. The same difficulty is also met with in the explanation of the word "Tṛvarutha". The Maruts are invoked to grant a dwelling which should be "tṛvarutha" (VIII. 18. 21). Sayana takes the word to mean either a shelter against the

three sources of distress viz. the sun, rain, and cold or "a three storeyed dwelling". In IX. 97. 47, the word has been used as an epithet of Śarma. In VIII. 18.20, we have the word without the prefix "three". There too Sayana takes "Varutha" as meaning a shelter against sun, cold etc. and thereby referring to a house. Unless the meaning of these words is precisely explained, nothing can be said definitely about the existence or non-existence of many storeyed houses in the Rigvedic period.[1]

Indians were skilful builders of dams or embankments from a very early time; and the references to 'Śmasā' meaning a dam point to its existence in the Rigvedic period.

The doors formed an important feature of all the houses, as is evident from the special worship offered to them. The large number of doors attached to a house has already been referred to, thousand doors denoting the largeness of the number. On the door, perhaps forming the jambs, stood a Yūpa (post). The strength of the door was a matter of special observation and often a good object of comparison indicating stability and strength (I. 51. 14). The door is called dvār, dura, bāra, khani and so on. In one hymn (I. 188. 5) doors are described as "Virāṭ, samrād, prabhvī, vahbī and bhuyasī" meaning "variously and perfectly radiant, manifold, excellent, many and numerous"

References to pillars are found all through the Rigveda. Sthūna, Stambha, Skambha or Viṣkambha are the several names of pillars referring to both free-standing pillars and supports. Several other words such as Upamit, Meta, Upamat, Dharuna etc. are used to refer only to the supports. Many gods are compared to pillars in respect of the support they afford to the worshippers or to the firmament (I. 59. 1; III. 31. 12; IV. 5. 1). Reference has already been made to the thousand-pillared house of

[1] The word 'Dhātu' in connection with buildings is used in the Śilpa Śāstras as referring to the various (seven) parts or the materials of a building (Śilparatnam, Ch. 16 121-23)

Varuṇa. The "Sahasra-sthūna" houses are mentioned in many places in the Jātaka stories and in the great epics and seem to have been very much liked by the Indians. The use of the two words 'Yūpa' and 'Sthūna' indicates that they are synonymous and that the shape of the pillars at that time resembled that of the sacrificial stakes. The octagonal pillars of later periods seem also to point to the same fact.

The post or the Yūpa which had to be erected at the time of a sacrifice was worshipped with mantras (III. 8) before it was set up on the ground; and from these mantras we may form an idea of its shape. It was undoubtedly constructed from a tree as is evident from the term "Vanaspati" which was used while addressing it. The Yūpas were set up to the east of the altar where fire burned. They are said to have been measured with great care, which shows that the measurement was made in strict conformity to the injunctions laid down in the Brāhmaṇas and the Kalpa-Sūtras. When their number exceeded one, they were ranged in rows. On the tops were hung several garlands The 'Svarus' or chips are referred to in the Rigveda and they are explained in the Brāhmanas as chips of wood cut off from the stake and inserted under a rope girding the lower part of the Yūpa. On the upper part was set a 'Chasāla' or a ring forming a head-piece. The Brāhmanas supplement this description of a Yūpa by saying that it should have eight corners, from which it may be inferred that in the Rigvedic period too the Yūpas were octagonal in form. The octagonal pillars so common in Indian architecture seem to have originated from these Yūpas; and they seem to have been specially liked by the Indians because of their association with the religious structure Yūpas. The 'Chasāla' was the prototype of the capitals of pillar of later days. The description of the Rigvedic Yūpa should be studied along with the one found in the Brāhmaṇas and the Epics, an actual reproduction of which in stone may be seen in the Isapur Yūpa-Stambhas.[1]

[1] Archaeological Survey Reports 1910-11, pp 40ff.

The sacrificial altar was the other structure connected with religion. The description of an altar occurs in X. 114. 3, which shows that it was quadrangular in shape. The word 'Suparṇa' in this hymn reminds one of the directions laid down in the Śulva-Sūtras for making an altar in the shape of the bird, Garuḍa, and also of similar descriptions of altars occurring in the Ramayana and the Mahabharat.

The prevalence of the custom of burying the dead in the Rigvedic period is a matter of controversy among the scholars. Even if the deadbody itself was not placed inside the tomb, there are references in the Rigveda to show that mounds were raised over the bones or ashes of the dead. The expression 'Mṛnmayam Gṛham' (VII. 89) refers to these tombs. There is one whole chapter (X. 18) in the Rigveda from which some idea of these mounds may be formed. The first construction described in this connection was a 'Paridhi', which indicates a circular structure encircling another. Sayana thinks that this Paridhi was made of stone. Whether stone was really used or not, it may safely be concluded that the structure was similar to and thus a prototype of the Buddhist "Rails" found round the Stūpas.[1] The 'parvatena' by which death is said to have been hidden inside should not refer to the paridhi, as Sayana takes it, but to the mound which was erected over the place, as is obvious from the form hinted by the word itself Verse 13 shows that a 'loga' was then placed either as a lid over the urn containing the bone (as Sayana takes the word to mean) or over the mound itself. If the second meaning be correct we may infer that a piece of some hard material was placed on the top of the mound to protect it from the rains, from which arose the custom of facing the stūpas with bricks or stone. Above the 'Loga' or by the side of the mound must have been erected a 'Sthūna' or a pillar. It was a universal custom with the Buddhists to erect such a pillar by the

[1] Wilson's notes on the verses.

side of the Stūpas. Dr. Bloch, however, while excavating the site of Nandangarh, unearthed several wooden posts standing erect over two horizontal layers of clay alternating with straw and leaves. These layers contained a deposit of human bones and charcoal accompanied with a small golden leaf impressed with a female figure.[1] He identifies these remains with the Rigvedic burial mound and accordingly interprets the Rigvedic verses addressed to Pṛthivī as referring to the goddess Earth whose figure was imprinted on the golden leaf. The sthūnas, referred to above may be the pillars similar to those discovered by Bloch. His interpretation, however has not been universally accepted.[2] Leaving aside the doubtful points we may infer the existence, in the Rigvedic period of burial mounds having a Paridhi and a pillar. The Grhya Sūtras enjoin that the burial hymns of the Rigveda are to be recited while placing the bones contained in an urn, under the ground; the ceremony being called 'Asthisaṃgraha' (collection of the bones).

Havell has noticed[3] a similarity between the Rigvedic burial mounds, and the Sudama cave; and Dubreuil has drawn our attention to the resemblance between those mounds and several South Indian structures with vaulted roofs. Whatever might have been the precise form of these mounds, there is no doubt that these Rigvedic mounds must have been the prototypes of the Stūpas of the Buddhists. The word 'Stūpa' occurs at least twice in the Rigveda; but the meaning is, according to Sayana, a heap of rays. The word might have meant at that period, as it still does, a heap (of anything) though vedic scholars have taken it to mean 'summit'. But in one of the passages of the Rigveda, the word perhaps indirectly indicates a structure. The The verse[4] (I. 24. 7) may be translated as follows, "The

1 A S Reports 1906-07, p 119ff
2 Cambridge History of India, Vol. I, p 616
3 Havell—Handbook of Indian Art
Dubreuil—Vedic Antiquities.
4 Rigveda I 24 7

king Varuna raises (dadhate) a stūpa above the forest (vanasyordham) in a place having no foundation (abudhne)' Although this translation may seem to contradict Sayana's interpretation, it does not so really come in conflict with it, for, the stūpa here refers to the heap of rays From the above translation it is clear that the poet here suggests a comparison between the heap raised by Varuna and a Stupa which was generally built on a strong base, but the power of the god Varuna was such that it enabled him to construct one without any base This passage may, therefore, indicate the existence of mounds having a base called Stūpas, even in the Rigvedic period

The above review of the condition of architecture as we find it in the Rigveda shows that architecture had already passed the primitive stage The strong cities or forts described in the Veda, according to many scholars refer to those of the Asuras only, who are identified by many with the Assyrians living in India [1] The indebtedness of India, as regards architecture, to the Assyrians is apparent from several ancient structure It is therefore probable that the Asuras (Assyrians) of India were more advanced as regards their architecture than the contemporary Rigvedic Aryans The newly discovered civilisation at Mohenjodaro and Harappa may lend strong support to the opinion of the aforesaid scholars, but nothing can definitely be said before the excavation of those sites are clearly interpreted

In this connection we may recall the references to Mana' (Agastya) and Tvasta in the Rigveda In later periods they were regarded as master architects of the Drāviḍa School Mr J C Ghosh[2] also tried to prove that Nagnajit, an architect and the Asura King of Gandhara lived in the Rigvedic period A Nagnajit was also later on regarded as a master architect We shall further discuss this matter

[1] D R Bhandarkar—Asoka
[2] J C Ghosh—Indian Culture Vol VI
See also Chap X

(Ch. X) to show if there might have been an Asura or Drāviḍa School of architecture in the Rigvedic period. This is perhaps to be identified with the architecture of the people whose remains have been found at Mohenjodaro and Harappa.

Chapter III

ARCHITECTURE IN THE LATER VEDAS AND THE BRĀHMANAS

From the Rigvedic period, we have seen, the Indians began to develop several architectural traditions, which were most intimately associated with their religion. We have shown how some idea may be formed of the shape of the Vedī (altar) and the Yūpa (sacrificial stake) from the hymns recited during their construction. Civil architecture must have been in process of development when the Aryans came in closer contact with the original settlers, and acquired more intimate knowledge of the 'Puras' of the Asuras.

When we come to the later Vedic texts, the Yajurveda, the Atharva Veda and the Brāhmaṇas, we find many of the Rigvedic verses still in use. Hardly any new kind of religious structure had been evolved, and the gradual change in the building methods cannot be inferred from these later hymns. The White Yajurveda (Chapter 35), however gives a description of the construction of the Śmaśāna (funeral mound) existence of which was also known in the Rigvedic period (vide ante) which gives us an idea of the prototype of the Indian Stūpas-Hindu or Buddhistic (Vide "Origin of Indian Architecture").

The Black Yajurveda contains, numerous hymns relating to the Yūpa (I. 3; VI. 3 etc.). One of these hymns supports the theory that the earliest structures in India had a symbolical significance. Of the Yūpa, it is said (VI. 3. 4), "What is dug in belongs to the Pitṛs; what is above the part dug in, upto the girdle, belongs to men, the girdle belongs to plants What is above the girdle, upto the top, to all gods; the top to Indra, the rest to the Sādhyas". These hymns may have given rise to the depictions of the figures or symbols of the Pitṛ, human beings, plants, Indra and the Sādhyas on the different parts of the Yūpa. If Yūpa

be taken as the prototype of Indian pillars, we must try to show how far the decorations carved on the pillar conformed to this description in the Veda. The shafts of many extant pillars from the base upto the girdle contain human figures, and the girdles are generally decorated with leaves. The top of the Yūpa might have contained the figure of the god worshipped (In the Vedic period, perhaps a figure of Indra, the greatest of the gods). Later on this part of the Stambhas or Dhwaja set up in front of a temple contained a figure of the Vāhana or the vehicle of the god—as for example, Garuḍa the Vāhana of Viṣṇu, the Bull of Śiva and so on. The parts above the top, the entablature, belonged to the Sādhyas and we find the Indian entablatures generally decorated with flying figures—the Sādhyas of the Vedic texts.

The Atharvaveda contains the hymns recited during the building of house (III 12; IX. 3) and many architectural terms have been incidentally used in it. While describing the building operation, the Atharvaveda mentions the raising of the 'Vamśa' (beam) above the 'Sthūna' (post), of the 'Upamit', the 'Pratimit' and the 'Parimits' of a 'Śālā'. These words refer to the various supports of the roof which must have been similar to those of the modern Bengali thatches (Illustrated in Havell's "Ancient and Medieval Architecture")—the interstices of bamboos, lengthwise and breadth-wise, and short support of the roof. These terms, therefore, indicate to some extent the nature of the ordinary dwelling houses of the Atharvavedic period. This Veda further refers to houses, of varying shapes and sides, some being two-sided, others four-sided, six-sided, eight-sided and ten-sided. The Rigveda refers to 'a lord of the house', (Vāstospati); whereas the Atharvaveda refers to a "Mistress of building" (IX. 20). Pillars are called Sthūna as well as Skambha in the Atharvaveda.

The Brāhmanas contain elaborate descriptions of the forms of the various religious structures—the Yūpa, the Vedī and the Śmaśāna. The gradual development of Indian art may also be known from some of the Brāhmaṇas.

The word "Śilpa" in the sense of a work of art is found in the Brāhmaṇas. Thus in the Aitareya Brāhmaṇa (VI. 5.27), we find the following passage, "They recite the Śilpas. These are the works of art of the gods; in imitation of these works of art, here is a work of art accomplished—an elephant, a goblet, a garment, a gold object, a mule chariot are works of art". Here the word Śilpa is illustrated by objects such as an elephant, a goblet etc. Thus hand-made things or a sort of sculpture was recognised as a branch of Śilpa. The use of these articles in a sacrifice, which were symbols of something, indicates the earliest use of symbols by the Indians. All scholars agree that a sort of image worship had begun in India in the later Vedic and the Brāhmana period.[1] In the above mentioned passage some of the cult objects are clearly referred to. Again in the Kaushītakī Brāhmaṇa (XXIX. 5), it has been said, "The Śilpa is three-fold, dancing, music and singing". Thus in the Brāhmana period Śilpa meant the fine arts including sculpture, singing, dancing and music.

In the Brāhmanas, as has been said, we meet with a sort of image worship. The cult objects have already been referred to In various rituals the wheel is used as a symbol of the Sungod, representing both its shape and motion. A piece of gold was often used as a symbol of the Sun. It is further believed that a leaf of gold with the figure of the Earth-goddess carved on it was often placed along with the ashes or bones of the dead in the mounds erected over them. In the Śrauta and the Gṛhya Sūtras, images are clearly mentioned.

The Aitareya and the Śatapatha Brāhmanas contain description of the methods of construction and explanations of the forms of the Yūpa. The Śatapatha account gives fuller details, from which one may form a clear idea of the forms of later Indian pillars, (Vide "Origin of Indian Architecture").

[1] See Dr J N. Banerjee—Development of Hindu Iconography.

While describing an altar the Śatapatha Brāhmaṇa (I. 2. 5.) says, "Measuring a Vāma across on the west; three cubits long should be the easterly line. It should be broader on the west, contracted in the middle, and broad again on the east, for thus shaped they praise a woman". In VII. 4. 4. we further find a description of the Vedī, and in VIII. 1, a description of the Citi which was to be made of bricks. (Fire Altar).

The use of bricks in ancient India could not have been limited to sun-dried bricks only, as Sir John Marshall holds; for, the bricks used in the 'Citi' got burnt in the sacrificial fire and must have taught the Indians the knowledge of the process of burning bricks. The descriptions of the fire-altar as found in the Brāhmanas may be supplemented by those in the Śulva Sūtras. The injunctions laid down in these texts were actually followed in practice, as is evident from the descriptions of the fire-altar, contained in the Epics.

The construction of the Śmaśāna (Burial mound over the ashes or the bones of a dead man) is described in detail in the Śatapatha Brāhmaṇa (XIII. 8. 1. 4.) which, supplemented by the Rigvedic and Yajurvedic verses already referred to, gives us a clear idea of the earliest form of the Indian Stūpa. The Aryan Stūpas were four-sided, the non-Aryan ones were round. Square Hindu Stūpas have been found in India. The Hindu Stūpa rested on the earth, whereas the Asura Stūpa was erected on a base. The mound was then enclosed by a stone which perhaps indicates the stone casing or the rails round the Stūpas. Pegs were fixed on the four sides, which might have given rise to the custom of erecting a pillar on each of the four cardinal points around the Stūpa. (Vide "Origin of Indian Architecture"). The description occurring in the Śatapatha Brāhmaṇa further indicates the influence of Asura architecture on Aryan or later Indian architecture.

The Aitareya Brāhmaṇa refers to Parvata and Nārada as teachers of Nagnajit of Gāndhāra and these two sages are also mentioned in the Rigveda (IV. 15). Nārada and a

Nagnajit later on came to be regarded as authorities on Vāstuvidyā (see ch. X) of the Drāviḍa School. While describing the fire-altar, the Śatapatha Brāhmaṇa rejects the view of Nagnajit on the ground that he belonged to the kingly class This matter will be discussed in a later chapter.

Chapter IV

VĀSTUVIDYĀ IN THE SŪTRA LITERATURE

In the Rigveda and the Brāhmaṇas no direct reference to the existence of the Vāstuvidyā can be traced; though the existence of many of the rules of Vāstu-Śāstra may, as has been shown, be gathered indirectly from them. It is in the Gṛhya Sūtras that we first meet with several principles of Indian architecture which gradually developed into the elaborate Science of Architecture—The Vāstuvidyā.

The Śānkhāyana Gṛhya Sūtra describes in three chapters (III 2 ff.) the ceremonials performed by a man when he builds a new house. First he draws, with an Udumbara (Fig tree) branch, three lines—one round the ground where the building is to be erected, then performs some sacrifices in its centre, and then erects the posts in pits dug for the purpose. When the house has been built, conformably to its proper dimensions, further worship is offered to the posts and other parts of the building. "He touches the posts, the two to the east with (the words) "Truth and Faith", those to the south, with "Sacrifice and Gift", those to the west, with "Strength and Power" and those to the north, with "The Brāhmaṇas and the Kshatriyas". The other parts are to be similarly touched—thus, the pinnacle with "Fortune", the chief post, with "Law", the two door jambs, with "Day and Night", the roof with "Year" and the foundation, with "A Bull and Ocean". Then he performs a sacrifice to Vāstospati, reciting the several Rigvedic hymns and enters the new house with his family, saying, "Indra's house is blessed, that I enter with my wife etc."

These ceremonials furnish important data for the proper understanding of Indian architectural principles. It is to be noted that the centre of the ground was held in high reverence. It was there that the first necessary rites were to be

performed and the chief post fixed. The existence of the central post and the importance ascribed to it in the Sūtras indicate that the earliest house of the Aryans, of a time when these ceremonials came into vogue, was one with a pillar in the centre, on which the stability of the house depended. The flimsy nature of the building is perhpas indicated by the invocations to Vāstospati and Indra—the two being identified. The house was Indra's house and was meant for protection against his arms—the thunder and rain (see "Origin of Indian Architecture").

Another important conclusion we may draw from the worship offered to the various parts of the building—the posts, the pinnacle, the door jambs, the roof and the foundation These were to be touched and each had a symbolical meaning attached to it This shows that from very early times architectural constructions had been invested with symbolical and mystic significance, each representing a particular aspect or condition of the human society. These traditions must have been handed down from generation to generation, and even when the original significance had been forgotten, the structures deviated very little from their original forms.

The Āśvalāyana Gṛhya Sūtra contains three chapters on Vāstuvidyā (II 7-9) in which are described, besides the ceremonials already mentioned, several new customs of the period. The selection and examination of the ground or site, the methods of which have been elaborated in later Vāstuvidyā, forms one of the most important subjects discussed therein This examination is firstly based on the outward appearance of the site—the growth of trees and shrubs, elevations and the depressions. The quality of the soil is next examined in two different ways. A pit is dug and is filled again with the earth taken out of it. If the cavity is not entirely filled up by it, the soil is to be rejected; if the cavity is exactly filled up by it the soil is of medium quality, and lastly if there is excess of earth after refilling it the soil is considered to be excellent. The next process

is thus described—"After sunset he should fill the site with water and leave it so through the night. If (in the morning) there is water in it, the ground is excellent; if it is moist, it is of middle quality; and if it is dry, it is to be rejected". The colour and taste of the soil were to be next examined. Soil of a particular colour and a particular taste was considered suitable for a particular caste. Thus white soil with sweet taste was to be used by a Brahmin, red soil by a Kshatriya and yellow soil by a Vaiśya and so on. The shape of the site was to be either quadrangular or square or oblong.

The next rule dealt with in the Āśvalāyana Gṛhya. Sūtra refers to the construction of the inner chambers. The next Sūtra lays down:—"In the pits in which the posts are to stand, he should have an Avakā i.e. Sipāla (a kind of water plant) put down; then fire will not befall him". This injunction proves that the earliest houses were supported on wooden posts, and to save them from fire, aquatic plants were placed at bottom to keep them moist. The central post is then worshipped, which indicates its special importance, as already noted. The Śāṅkhāyana Sūtra enjoins that a sacrifice of cooked messes of food is then to be performed in the centre of the house.

The Sāmaveda Gṛhya Sūtras—The Gobhila and the Khādira deal with the subject in a more elaborate way and many new topics have been introduced. The selection of the ground is first made on the same principles as described before. The shape of the site should be like that of a brick or a round island. In other words it should be either quadrangular or circular. It should have natural holes all around which were undoubtedly intended to provide good drainage.

Regulations regarding the position of the doors of a house are here found for the first time. A special importance was attached to the position of a door in the house. It was supposed that different positions affected the fortunes of the owner of the house in different ways. A particular position was considered beneficial, and a different

position was considered harmful. Thus one who is desirous of fame or strength should build the house with its doors to the east; one who is desirous of children or of cattle, with its door to the north; one desirous of everything, with its door to the south. Let him not build with its door to the west or with a back door" (Gobhila IV. 7. 15-19). The later Śilpa Śāstras elaborated the regulations relating to the position of a door, the nucleus of which may thus be noticed in the Gṛhya Sūtras.

The position of trees to be planted around the house was also clearly indicated and people were forbidden to plant particular trees in a particular direction. Thus, one should avoid the Aśvatthva to the east of the house, a Nyagrodha to the west, and an Udumbara to the north. These regulations too are mentioned in the later works on Vāstu (Cf. Mat. Purāṇa 255. 20-21, Bṛhat Saṃhitā; Agni Purāṇa etc.).

The next thing enjoined is the sacrifice of a black cow and the placing of the fire in the house Offerings were then to be made to Vāstospati and the various gods presiding over the cardinal and the intermediate points of the compass, *viz* Indra in the east, then Vāyu in the south-east, Yama in the south, the 'Pitr' in the south-west, Varuṇa in the west, Mahārāja in the north-west, Soma in the north and Mahendra in the north-east. Downwards (towards the depths of the earth) worship should be offered to Vāsuki, and upwards to the Sky and to Brahman. The simple worship of the Vāstospati, as found in the Gṛhya Sūtras was gradually elaborated till in the later Śilpa Śāstras, the number of the gods worshipped was greatly increased (with the division of the site into 'Padas' 81 or 64 in number with a god in each pada). The later gods should be compared with the earlier ones.

It is in the Yajurveda Gṛhya Sūtras, that the earliest directions are found for building the house on auspicious days (Pāraskara III. 4. 2). The auspicious moments are laid down in the Hiraṇyakeśī Gṛhya Sūtra (I. 8. 27). The sacrifice inside the house is enjoined in all the Sūtras of

this Veda. The Pāraskara enjoins offerings to a greater number of deities than what is found elsewhere. The touching of the posts and walls is described here also, but a different symbolical significance is ascribed to them. It is said that the eastern posts represents 'luck and glory', the southern ones 'sacrifice and sacrificial fees', the western ones 'food and the Brāhmaṇa' and the northern ones 'vigour and delight'. The chief post, the pinnacle and the door jambs are taken to symbolise the same things as are mentioned in the Śāṅkhāyana Gṛhya Sūtra The offering to the presiding gods of the different quarters have also been enjoined, but some of the gods mentioned here are different from those in the Sāmaveda Śūtra. The Hiranyakeśī Sūtra contains a hymn addressed to the roof which is not to be found in the other Sūtras

Thus the Gṛhya Sūtras contain many matters which are of great importance for the architectural history of India. The ceremonials, as has been shown, indicate the earliest or the pre-historic form of the houses of the Aryans. The special esteem in which the central post is held may suggest that, though at the time of the Gṛhya Sūtras the houses had many posts, in earlier times the central post was the only one in a house, or at least it was its mainstay. The symbolical meanings attached to the various parts of a house show that Indian architecture had already been clothed in a mystic garb The different methods of examining the proper site of a building and the allocation of lands, according to colour and taste, to particular castes, and the worship of various gods, the auspicious moments for erecting a house, the regulations regarding the position of the doors and the trees are the principal subjects relating to Vāstuvidyā dealt with in the Gṛhya Sūtras. These subjects were later on elaborated in the Vāstu-Śāstras and thus it is in these Sūtras that we find the earliest traditions and principles of Indian architecture, which represent the earliest form of the Vāstuvidyā.

The central post is called the Madhyama Sthūna and the roof was constructed with interstices of bamboos placed over the other posts and the central one. A particular kind of building was the Sabhā which perhaps refers to the audience hall or the drawing room, special rules for the site of which are laid down in the Āśvalāyana Gṛhya Sūtra. The other chambers in a house were called the Śaraṇa which were to be made in the intervening spaces between the two beams supporting the roof There is a reference to the bricks in these Sūtras in connection with the forms prescribed for the building site but it is not possible to ascertain whether the bricks were burnt or sun-dried ones.

The Āśvalāyana Sūtra further contains a few Sūtras (IV. 5. 5-8 and 6. 9-10) regarding the burying of the urns containing the bones and ashes collected from the funeral pyre. These Sūtras throw some light on the several Rigvedic hymns (Book X) on the subject. It is almost certain, however, that the Gṛhya Sūtras do not indicate the prevalence in India of the custom of burying the dead at that time, although some have inferred it from the Rigvedic hymns.

We should also refer here to the Śulva Sūtras The rules for different sorts of bricks required for the construction of the 'Agni', on the 'Agnikshetra' (altar for vedic sacrifice), according to the Āpastamba Śulva Sūtra, lay down interesting details regarding the length, breadth and bend of bricks assigned to the first class. The Āpastamba Sūtra goes on with the description of several classes with detailed accounts of their use in the particular portion of the altar. The size of the bricks depended upon the use for which they were intended and their corners were shaped according to the purpose The layers in which they were to be placed are also mentioned Baudhāyana Śulva Sūtra (Patala III) lays down rules for the construction of the altar shaped like a wheel with spokes It makes mention of bricks of different sizes and the number required for the structures. The use of bricks in fire altars must have taught

the early Indians, as has already been noticed, the knowledge of burnt bricks. Their use, therefore, may be traced to a very early period.

CHAPTER V

ARCHITECTURE IN THE AGE OF THE RAMAYANA

ALTHOUGH a great deal has been written on the subject by many Indologists of eminence yet the age of the Ramayana cannot be said to have been settled beyond dispute It is still a matter of controversy. We may, however, try to form from incidental references a fair picture of the state of architecture during the age of the Ramayana which is unanimously held to be an old epoch of Indian history That there are in the Ramayana many interpolations of a later age is generally admitted. A thorough perusal of the references, however, shows that the descriptions, wherever they occur of buildings towns and forts, are almost alike This shows, that the later poets, even while interpolating their own writings in the original epic, followed the old way of describing things. This continuity of old tradition may therefore help us to reconstruct the history of Indian architecture of a very early period.

The descriptions of towns, palaces and forts show that Indian architecture had attained much advanced stage and that a science of architecture had already grown up. Experts in this science (Sthāpatye niṣthitān) where highly honoured by kings and their advice was always sought whenever any kind of structure had to be raised. Maya and Visvakarmā were already famous as the two master-architects of the Asuras and the Devas respectively. In Kishkindhyā Kānda (chap. 51) a story is told of how Maya acquired the knowledge of Śilpa Śāstra, the science of architecture, treasure of Uśanas (Auśanasam dhanam) from Brahmā. This legend shows that the treatises of Maya and Uśanas i.e Śukra, which are lost, were alike in character. From the Matsyapurāna we learn that both Maya and Śukra were once famous as two of the eighteen preceptors of the Vāstuvidyā (Science of Architecture). Other

references to Maya and Viśvakarmā show that the former was an architect of south India, the latter of the northern, eastern and western parts of India, a part of the Deccan and even of Ceylon.

The sacrificial rites involving animal sacrifices, which were performed at the time of a new construction and which are enjoined in the Gṛhya Sūtras and the later Śilpa Śāstras, do not appear to have become a matter of mere form without any special significance. This becomes clear to us when we see that people in the age of the Ramayana strictly observed these rites even when they constructed a small cottage. Ramachandra, for example, is said to have performed the "Vāstūpaśamana ceremony" and the animal sacrifice, the "Vaiśvadevavali" when he built even a temporary structure in the shape of a mere cottage on the Chitrakuta Mount.[1] Technical words found in the later Śilpa śāstras also occur in the Ramayana. The terms 'Sthapati', 'Vardhaki', 'Takshaka' and Sūtradhāra were used, to designate different classes of artisans employed in the construction of a house. In later Vāstu Śāstras the same terms have been given to different classes of artisans, and their respective functions have been defined.[2] "Bhūmi" meaning a storey occurs in "Anekabhūmi, (IV. 33) Saptabhauma (V 2. 49)" etc. Houses and palaces had already been classified with their appropriate technical names according to their different characteristics, e.g. the Chatuḥśāla, the Padma, the Svastika, the Vardhamāna houses, and the Vimāna (palace) called the Pushpāhvaya. All those names occur in later Śilpa Śāstras and will be explained later on. Forts were also divided into four classes such as the river fort (Nādeya), the hill fort (Pārvatya), the forest fort (Vanya), and the artificial fort (Kṛtrima) (VI. 3).

Towns, forts and 'antaḥpuras' (quarter for females) were protected by strong walls and ramparts; and ditches were dug around to afford additional protection. Four elaborate gate-ways (gopuram) were erected for entrance

[1] II. 56. 23 and 32.
[2] Mayamatam, V 13-14.

into the city and each was approached by crossing a bridge erected over a ditch and supported by many pillars and platforms. The entrance was protected by strong doors and bolts Watch towers (aṭṭālaka) from which the movements of the enemies outside the city walls were watched were also raised These were the usual essential features of a town. This is apparent from the fact that they were not confined to Ayodhyā alone but are also noticeable in the description of Sugrīva's capital in Kishkindhyā and of Rāvana's at Lankā.

Palaces or ostentatious dwellings were known as Prāsādas, Vimānas, Harmyas and Saudhas. There are descriptive passages in which two or three or four of these terms have been used together indicating well-marked differences between them and suggesting a classification of various types of buildings Prāsādas are described as Saptabhauma, Ashṭabhauma, Anekabhauma and the like; and this perhaps shows that the name Prāsāda was usually applied to many-storeyed palaces The existence of such many-storeyed houses in later times is attested to by the descriptions left by the Chinese pilgrims of such buildings as well as by the archaeological excavations at Nalanda, Sarnath and Kasia etc.[1] The Vimāna type of palaces has been defined in some of the later treatises such as the Brhat Samhitā and the Hayaśīrṣa Pañcharātra[2] Palaces were crowned with domes or pinnacles (śikhara, śṛnga etc.) and one type of Śikhara was also known as the Vimāna, as the expression 'Prāsādāgravimānesu' signifies. The Saudha type of buildings must have derived their name from Sudhā, lime or any kind of plaster, and as such perhaps referred to the white-washed buildings. The definite nature of the Harmyas cannot be ascertained; but the word is also found in the Vinayapiṭaka. Some palaces had many pillars. Thousand columned palaces are twice mentioned in the Ramayana (V. 15 and VI. 39). The Pushpaka class

[1] "Excavations at Kasia", Arch Surv. Rep., 1904-5.
[2] Hayaśirṣapañcharātra, Saurakāṇḍa (V. R. S. Ms).

of palaces, already referred to, is described in details in the Agni Purāṇa, and the Hayaśīrṣapañcharātra.[1] These passages are too long to be quoted. The Padma buildings were so called because their shape resembled that of a Padma (lotus).[2] Houses without a door facing the east were called Swastika and those without a door facing the south called Vardhamāna.[3] Besides these, there were buildings like the Vajra (thunderbolt) or Aṅkuśa (the goad) in shape (V 4. 5-7). In the Matsya Purana (Chap. 217) it is prescribed that cities were to be built in the shape of a Vajra. Buildings were provided with decorated gateways (toranas) and as many as seven separate courtyards (Kaksha) each surrounded by a row of houses on all sides. Windows were provided for ventilation, and they were either latticed or covered with nets of gold and silver (Hemajāla) These windows are most beautifully described in many passages, which show their importance as decorative elements in the buildings. Over the tops of houses, besides the śikharas and śrngas (pinnacles), were constructed the Chandraśālās. In Rāvana's palace they were like the half or the full moon in shape. The vitankas or small holes under the cornice for the habitation of pigeons or other birds are one of the other features mentioned. Balabhīs were another class of structure attached to a building and probably meant balconies or sun-sheds under which the pigeons clustered as may be found from numerous descriptions in the Ramayana and in Sanskrit literature and the Silpa Śāstras of later times (see Coomarswami, J.A.O.S., 1928, p. 260).

In addition to these features, mention is also made of artistic attempts to decorate the houses, and the reference to statues or statuettes in this connection being most remarkable. Thus Ramachandra's palace-toranas (gates) are said to have been decorated with golden statues (II. 15), and Bharata's camp set with jewelled figures here and

[1] Agni Purana, Chap. 104, 11-12.
[2] Bṛhat Saṃhitā, Chap. 56, 23.
[3] Matsya Purana, Chap. 254, 3.

there (II. 80). In Lankā, Rāvana's palace is described as containing many jewelled statues of birds, serpents, horses and of Lakshmī with two elephants on her sides (V. 7. 12 & 14). Figures of Lakshmī are found carved on the Sanchi and the Bharhut toranas and over the doorways of the Anantagumpha cave at Khandagiri in Orissa and of many later temples This indicated that the custom of depicting the image of Lakshmī on gates and doorways had been in vogue from remotest antiquity irrespective of any creed or cult. This motif was thus a most favourite one with the Indians and its mention in the Ramayana is therefore full of interest. Elaborate staircases are mentioned in many places. They were said to have been built of crystal and valuable materials The columns were tastefully decorated and set with jewells They were straight and all of the same size, and were evenly chiselled. Their number in a building, as has already been said, often rose to one thousand; and this was a good device for enhancing the inner beauty of a building

Among the religious edifices may be mentioned the sacrificial halls (sabhā), the altar for fire, temples of gods (devāyatana) and chaityas No detailed description of a Sabhā is found in the Ramayana, whereas the Mahabharata (Sabhā Parva) describes in details some of the famous sacrificial halls of the gods They were generally temporary pavillions but sometimes they were built of bricks (Ramayana I. 13. 8) The sacrificial altar was made of various designs Daśaratha's fire-altar was made of bricks and had wings like those of Garuḍa, and was twenty-eight cubits in length. An altar resembling the shape of Garuda is enjoined in the Śulva Sūtras. We have no means of guessing what form the Deva-temples took at the period The chaityas originally meant sacrificial altars, but as they were different from the fire-altars already referred to, we are probably to take them as the prototypes of the Buddhist chaityas. Another class of buildings referred to in the Ramayana as the chaitya prāsāda (V. 15 & 43), is described as having thousand columns inside with

staircases of coral and platforms of gold. The mention of the numerous pillars inside this structure naturally suggests to the mind a building similar to the Buddhist chaityas of later times found at Karle, Ajanta and other places. The description of the 'chaitya prāsāda' in the Ramayana is therefore very remarkable. (See Chap. XXVI)

Sacrificial stakes are also described in the Ramayana (I. 14) as being constructed by artisans and as having eight sides. The earliest śāstras from the time of the Brāhmanas lay down the rule of making the Yūpas eight-sided; and thus eight-sided pillars came to be a favourite type in Indian architecture.

But although there are numerous descriptions of various kinds of architectural constructions in the Ramayana, the richness of poetic imagery used in them makes it difficult for us to ascertain the exact nature of the materials used in these buildings. Everywhere the poet praises the jewelled windows, staircases and pinnacles, the crystal floors and walls of gold and silver. Whether so much gold and silver and so many precious stones were actually used cannot at present be confirmed, but archaeological excavations have proved that even in very early times, the Indians had attained great efficiency in the jeweller's and lapidaries' arts. Only in two or three passages of the Ramayana there are references to other materials. Bricks are said to have been used in the construction of the sacrificial hall and the altars. The use of white-wash, whether of lime or of other ingredients, may be inferred from the term 'Saudha' as applied to a special class of buildings. Traces of a coating still to be found on the earliest surviving structures in India, such as the Buddhist stūpas, also show that white-wash had been in use from very ancient times. Only in two passages we read of stone buildings (Śilāgṛha, V. 14 & 41) and the expression "pillars of stone" occurs only in one passage (VII. 16). There being only two references to stone buildings in the entire Ramayana, and the Seventh book, in which there is the only one reference to pillars of stone, being admittedly a later work, we must

admit our inability to reach any definite conclusions as to the existence of stone buildings in the age of the Ramayana.

Thus we see that the Ramayana holds before us a picture which shows that Indian architecture had already attained a highly developed stage. While the many-storeyed buildings and fortifications prove the constructive genius of the people, the decorated windows and the toranas and the decorative figures testify to their artistic sense The references to well-planned high-roads (Suvibhaktamahāpathah) of the towns and the well-divided court-yards of the palaces clearly show that a sense of proportion and symmetry was also not wanting in them. The relative proportions maintained in the construction of buildings of different sizes also point to the same fact. Thus Kumbhakarna's sleeping hall was one Yojana in width and twice as much in length. This proportion between the length and the breadth of a building was maintained by the Indian architects of later times.

In conclusion it may be said that the references to buildings in the Ramayana do not contain anything which may raise any doubts as to the antiquity of the condition of architecture pictured in it. The descriptions occurring there have a remarkable resemblance to those we find in the Pali Jātakas as well as those left by the Greeks who visited, or wrote about, India Even later interpolations in the Ramayana clearly indicate the continuity of the old architectural traditions of India.

Chapter VI

ARCHITECTURE IN THE MAHABHARATA

The Mahabharata contains many incidental references to the condition of architecture in ancient India. The elaborate descriptions of cities and the sacrificial grounds furnish very vivid pictures of the same. The age to which these descriptions refer, is undoubtedly a long period extending from several centures B C. to the Third or the Fourth century A.D. But, in the Mahabharata also, as in the Ramayana, there is a great similarity between the earlier and the later references to architecture which, therefore, helps us to form an idea about the condition of architecture of a very early period of Indian history.

There are many passages in the Mahabharata which explicitly state that a science of architecture (Śilpa Śāstra and the Vāstuvidyā) existed at that time. There are also passages from which one may infer its existence. Thus, the architects are called "experts in Vāstuvidyā" (I. 51 15). We are also told that at the time of new constructions, sacrificial rites where performed on auspicious days. These rites were called the "Śānti" or the Mangalam (II. 1. 18). It is noticeable that the word 'Pāsādamaṅgalam' occurs in the Jātaka stories in the same sense. Sacrifices were made on these occasions (I. 135. 8). These rites are enjoined in the Gṛhya Sūtras and in all available treatises on architecture.

The names of Viśvakarmā and Maya, famous in later literature as the authors of architectural treatise are mentioned in the Mahabharata, not as writers but as master-masons of the Gods and the Dānavas respectively. Viśvakarmā is said to have been the "master of thousand arts, the Vardhaki (carpenter) of the gods and superior to all architects". He also constructed the chariots of the gods. Men earned their livelihood by practising the arts invented by him and offered worship to Viśvakarmā

(I 66 29 31) Visvakarma constructed the Sabha of Vaivasvata (II 8 1) and a town for the gods besides a statue, a necklace and wheels of the chariots for them Maya calls himself the Viśvakarma of the Danavas He constructed the magnificent assembly hall of the Pandavas from the materials collected by him from the kingdom of the Danava king Vrshaparva situated to the north of the Kailasa near the Vindu lake and to the north east of Indraprastha (II 1 5)

In the Mahabharata we read of Jara the demoness who brought up Jarasandha the king of Magadha and who is spoken of as the presiding goddess of a house Her figure was carved upon houses as protection against calamities Her name however, is not mentioned in any other work literary or architectural but the reference to her in the Mahabharata clearly points to the prevalence of her worship in at least some parts of India Besides this there are references to gods presiding over the quarters who play an important part in later Indian architecture

The Śanti Parva contains several chapters dealing with the fortifications of cities at the time of danger (XII 62) The classification of forts into six varieties similar to those enjoined in the Vastu Śastras is also found in the Mahabharata (XII 5 XII 86) Houses were also classified according to their distinctive characteristics each having an appropriate name similar to that found in the Śilpa Sastras These technical names were derived from the several mystic figures or symbols which were in vogue in remote antiquity Thus house of Svastika Vardhamana and Nandyavarta types are mentioned The technical names (Such as Pushpaka and Sarvatobhadra) given to royal seats in the Mahabharata were also used in treatises on architecture with reference to temples A Sabha called Toranasphatika is described in details in the Mahabharata These facts clearly show that the process of classification of buildings was already being elaborated Bhumi in the sense of the storey of a building also occurs in the Mahabharata These technical words as well as the classification

of houses, similar to that in the Śilpa Śāstras, prove that the science of architecture had considerably developed in this age (cf. "Devatāvādhavarjitam" in p. 51).

Ordinary dwellings were undoubtedly similar to those which are found in the villages of India in modern times. Thatched houses abounded in the country. But even in the construction of these common dwellings, a systematic and definite plan was followed. They were mostly of the Chatuḥśāla class and there are numerous references in the Mahabharata to houses of this type.

Considerable architectural skill was, however, displayed in constructing the more ostentatious buildings, the royal forts and palaces and the houses of the rich Forts were of six classes—Dhānva Durga (desert fort), Mahī Durga (earth-fort), Giri Durga (hill fort), Mānushya Durga (human fort), Mrd-durga (artificial fort) and Vana-durga (forest fort). This classification, however, differs in some respects from that found in other later treatises. In the Mahabharata, the water fort (Udak-durga) is not mentioned while Mṛd-durga and Mahi Durga can hardly be distinguished. (The reading may be defective here).

In other respects the classification is similar to those we find in the Manu Saṁhitā and the Purāṇas. The descriptions of the forts given in the Mahabharata enable us to form a clear idea of the defensive structure of a fort. A fort was usually surrounded on all sides by ditches (Parikhā). Thus the ditches of a city are compared in point of their width to an ocean (I. 207. 30). The ditches of Rāvana's fort were unfathomably deep (III. 283). Ditches were further made inaccessible by being filled with aquatic animals. Water was made to flow from rivers into these ditches by means of hidden gates (Saṁkaṭa-dvāra) (XII. 69). The fort was surrounded with a strong wall called "Prākāra". These Prākāras stood on a rampart called Vapra or Caya, made of the earth collected from the ditches. In the Mahabharata, the epithet 'Śaila' i.e. made of stone is applied only once to the Caya (XII. 170. 19). The Prākāras resembled masses of white clouds or

were radiant like the moon (I 207) Some are called Ratna-prakāra i e set with jewels These walls must have been very high The adjective white' is given to some of them, and this clearly shows that they were coated with white plaster Watch-towers stood over the walls, and they were of various forms—the atta, attālaka, Pragandī and the like Other structures which were set up on the walls where soldiers lay hidden and whence they threw arms were called Ākaśajanani, Huda and Gulma Walls had towers called Giris Another kind of structure, often mentioned, is the Pratoli, the form of which is described in the Arthasastra of Kautilya and several Śilpa Śastras

Ostentatious buildings were of various forms, as is indicated by the names, Sabha, Prasada, Vimana, Saudha and Harmya The exact characteristics of these buildings cannot be made out from the short descriptions found in the Mahabharata but there is no doubt that each possessed peculiar features differentiating it from the others The Sabhas were assembly halls which were either temporary or permanent structures Temporary Sabhas were erected on special occasions like a sacrifice, marriage ceremony, a tournament etc The permanent Sabhas were the audience halls of the kings The Sabha of the Danava King Vrshaparva, mentioned before, was made of crystal and other valuable materials The hall of the Pandavas resembled a chariot It was so skilfully done as to befool many of the visitors Buildings in the form of a chariot were not uncommon in India, as is evident from the Konarka temple The descriptions of the inconceivable size of the halls of Indra, Varuna and others may contain poetic exaggeration, yet they unmistakably show that the Indian kings lavished great skill and huge sums of money in the construction of their audience halls Some are described as being without pillars while others are golden-pillared or 'thousand-pillared Sabhas with hundred doors are also mentioned They were surrounded by walls, and arched gateways (Toranas) provided entrance into them The Torana-sphatika Sabha already mentioned, was one with thousand

pillars and hundred doors. The epithet "Sudhāvadāta" clearly points to their being plastered over with Sudhā or lime-coating. They were tastefully decorated, paintings being one of the usual decorative devices (XIV. 10).

'Prāsādas' were one of the permanent classes of royal buildings, although we cannot be sure if the word has been used in the sense of temple, as it has been in later times. These Prāsādas were very high and had Śikharas or pinnacles over them. Their white colour indicates their being coated with white plaster (I. 184. 19) and they radiated a glow which the poet compares with that of the moon. Some were made to resemble a chariot. Pillars lent additional beauty and support. Palaces with thousand Pādas or stambhas (pillars) are twice mentioned (V. 143. 30; XIII. 54. 2). The epithet 'Vividha' attached to Prāsāda shows that these structures had already assumed various forms.

In what respects, the Vimāna buildings differed from the Prāsādas is not hinted at by the Mahabharata. Vimānas also were of various classes and the descriptions indicate their abundance in the cities. The 'Saudhas' were buildings of another type, plastered over with Sudhā of lime. The makers of the Saudhas (The Saudhakāras) were often called upon to polish the buildings of a city. This shows that this type of building was greatly liked for its glow and polish (I. 128. 41). The Harmaya class of buildings is twice mentioned and there is no mention of its especial features except the epithet "Hṛdya" or delightful.

Besides the characteristics of various types of buildings already mentioned, various other features of houses have also been described. For example, houses are described as being as high as the Kailāsa mountain. Their whiteness is compared with that of a swan. Many-storeyed buildings have been described as "Anekaśata-Bhaumāni" i.e. houses having many hundreds of storeys. Structures variously named the "Balabhī", the Niryūha and the Karnāṭṭa were attached to buildings. The Balabhis were balconies supported on pillars. The Niryūhas were perhaps the brackets jutting out of the wall and supporting the roof. The

word 'Karnātta' perhaps means the towers or domes raised on the corners of a building. They had Śikhara or pinnacles over them. The commentator explains the word 'Karṇāṭṭa' as a house whose roof was constructed by placing square pieces on the lintel and gradually reducing the central space, to be covered, by cutting of the corners and by placing another piece on the diminished space, gradually carrying on the process till the whole space is covered over. This method of roofing was most common in the construction of Indian domes (Fergusson, Vol. 1, p. 314). If Karnātta really means buildings covered in this manner, the antiquity of Indian domes and of the method of their construction is thus established beyond doubt. Doors formed an important feature of cities and houses. The cities had at least four gates, with high structures, called Gopuras, erected over them. Buildings had often numerous doors and a hundred-doored Sabhā has already been mentioned. Windows of two kinds are mentioned—the Gavāksha and the Vātāyana. Pillars formed another decorative element and they are often described as made of crystal, jewels and other kinds of precious substances.

Another structure near the gateway of a city was the Śiśumāraśira which, as its name indicates, might have been similar to the head of a Śiśumāra, the aquatic animal 'Susuka'. This structure must be similar to the Hastinakha, a structure often mentioned in literature (See Arthaśāstra and Pali Pitaka books).

Among the different kinds of religious structures, mention is made of 'Yūpa' the sacrificial post, the 'Vedī, the altar, the 'Chaitya' and 'Devāyatana' the abodes of the gods. The Yūpas are described as octagonal in shape and in one passage its height is described with what seems to us to be an obvious exaggeration, as being 1000 Vyāmas (VII. 59. 6) The head pieces of the Yūpa called the 'Chaṣāla' and 'Prachasāla' refer to the head rings. Though they were generally raised as temporary structures during sacrificial ceremonies, the Mahabharata often describes Yūpas made of richer and harder materials strewn all over the

towns and cities, standing perhaps as monuments of victory. This is evident from references to golden and jewelled Yūpas found all over the cities.

The 'Vedīs' were the sacrificial altars set up in courtyards or on the banks of a tank. The sacrificial altars, sometimes described as being 18 cubits long, or sometimes as being triangular or Garuḍa-like in shape were usually made of bricks. The description of these structures is almost similar to that found in the Rāmayana. Hopkins holds that the use of the word "Trikoṇa" while describing the shape of the Vedī proves that it is a later interpolation. Even if we accept this view, we should not overlook the fact that the description we get in the Mahabharata has striking points of similarity to the one we get in the Śulva Sūtras.

The exact nature of 'Deva temples' cannot be ascertained from their meagre descriptions in the Mahabharata. The 'chaityas' are described as golden edifices set with jewels and adorning the various cities. They were worshipped by the people. Thus the exact nature of the chaityas also cannot be definitely made out. The chaitya of Girivrajapura had walls or Prākāras. The word is also used in the sense of the sacred tree of a village. The original meaning of the word is 'firealtar'; and this meaning is also hinted at in two verses (XIV. 10. 32; 88. 31). It is also probable that in the interpolated verses the word might also be taken to stand for the Buddhist Chaitya. The word 'Vihāra', occurs only once in the Mahabharata. This has led some European scholars to think that this word has been used in the sense of a Buddhist monastery (See Ch. XXVI). The structure called the Eḍuka, is similarly taken by scholars to refer to non-Hindu religious edifices. (But see description of Aiḍuka in Viṣṇudharmottara, Part III, Ch. 84).

Although we get numerous detailed descriptions of buildings, we can draw very little inference regarding the materials used. The profusion of gold and jewels might or might not be a mere poetic fancy. The use of white plaster

over walls, as has already been mentioned, must have been common. The use of bricks in the construction of altars has been clearly mentioned Stone structures have been mentioned only twice (V. 47. 5; XII. 170. 19). The Toraṇas, walls, ramparts and some parts of the gates of Girivrajapura are said to have been made of stone. No reference to brick-built or stone-built houses is to be found. Hopkins, therefore rightly holds that the architecture of that age, as a whole, cannot be said to have been of stone. (The great Epic of India, pp. 391-92). Plastered buildings might or might not have been made of bricks.

Of structures requiring consumate engineering skill, mention may be made of the bridges and dams (Saṁkrama and Setubandha), the Udaka-Gṛhas and the Surañgas. The word 'Surañga' according to Hopkins, is a later interpolation (p. 372, Great Epic of India) The units of measurements were the cubit (Kara or Kishku), the Vyāma and the Yojana.

Some idea of town-planning may also be gathered The towns are called 'Puras' or 'Nagaras'. They were protected by high walls going all around, and outside them were the ditches, often more than one, deep and of great width. One city had six walls (Satpādam) forming concentric circles, round it (XV. 5. 16). The walls were broken in places by gateways called the Gopuram, which could be reached by crossing bridges built over the ditches (III. 15. 15.). Other defensive structures raised over the walls have already been mentioned. Inside the town, the streets were planned on a sound scheme. Towns are described as having "well-divided 'Mahārathyās". In a similar context the word 'Mahāpatha' has been used in other verses. Both these words have been used in the later Vāstu-works in a technical sense Besides these, there were the extensive 'Rājamārgas' (XII. 69. 53). The street ran in various directions and crossed one another, the place of junction being an object of worship by the people (V. 194 58). The epithet "Devatāvādha-Varjitam" applied to streets reminds one of the injunction found in the Śilpaśāstras (See

"Door in Indian architecture"). On two sides of the Mahāpathas were the shops (III. 206. 8) and sheds for supplying drinking water (Prapā). The Prāsādas, Toraṇas, Yūpas, Chaityas and gardens further beautified the cities. All these details of a town enable us to form an idea of the town-planning of the time. Besides the town, mention is also made of Grāma, Ghosha, Śākhānagara, Janapada and so on.

CHAPTER VII

ARCHITECTURE IN THE JĀTAKA AGE

THE Jātaka-stories have been accepted by all Indologists as a store house of valuable information regarding the state of general culture which prevailed in ancient India during the period preceding the birth of the Buddha. These stories will help us to form an idea of the state of architecture in Northern India during that pre-Buddha age. It is probable that the current Pali version of the Jatakas had its predecessor in earlier Gathās, handed down to posterity by being sung from place to place. The age of the Jatakas was an early one, not later than the third or the second century B.C.

It may be noted at the outset that architecture in Northern India appears to have been no longer in its infancy in that early age, for the essential principles of architecture had already been enunciated in the teachings of a number of sages who are collectively referred to in Jatakas (Nos. 257 and 489) as "Vatthuvijjāchariyas". This expression clearly shows that the sages were the recognised teachers in a branch of knowledge called "Vastuvidya", although their names are not mentioned. The Vāstuvidyā is mentioned as one of the arts practised by the Brahmanas during the time of the Buddha (Diggha Nikāya, Brahma Jala Sutta, Sec. 21, 17 and 27, 6 and 7, 'Dialogues of the Buddha, p. 17 and 25). We are indebted to the Matsya Purana[1] for an enumeration of the names of eighteen sages said to have been well-known from ancient times as teachers of "Vāstu Śāstra". The name of Viśwakarmā, one of these eighteen sages, occurs in the Jataka literature (Nos. 483, 489, etc.) in which he is described as an architect of the gods, working under the orders of Indra. Although the exact nature and scope of the Vāstuśāstras of the Jataka age cannot be gathered

[1] See Chapter X

from the stories, yet the mention of many matters connected with architecture fairly indicates that the principal rules and regulations regarding construction, decoration, and ceremonials had already been well established. In a story (No. 489) a prince is described as performing the consecration ceremony of a new palace (Pāsādamaṅgalam—cf. Mahabharata). We learn from Śilpa Śāstras that sacrifice formed an essential feature of such ceremonies. Such sacrifices were also in vogue in the Jataka age. Technical words used in later works also occur in the Jataka stories; for example, the word, 'Bhūmi' in the sense of 'storey' is used in story No. 541. Palaces and streets had already acquired characteristic designations such as, Kokanāda nāma Pāsāda, (No. 353), Pupphakanāma Pāsāda (No. 525) and Uppalavithi (No. 261). Some of the decorative mouldings with special technical names are referred to in these stories. For example, the term 'Padma' (Cyma Recta), which is the name of the moulding occurs in the expression "Vātāpānasa Vāhira Padumake" or the outside 'lotus' of the window (No. 262). Oṣṭha and Grīvā to signify two kinds of moulding are also mentioned in the Jatakas.

Although the bulk of the people lived in that age, as they do even now, in flimsy huts, often thatched with leaves and grass and having walls made of reed or wood, yet stronger structures of wood, brick, and stone were not quite unknown in the Jataka age. Primitive huts appear to have reached a stage of development when wood was used for constructing posts, walls, doors, and also for laying foundations to assure greater stability. Story No. 489 describes a Pannaśālā (a thatched hut) in which trunks of fig wood were used to construct, and obviously to strengthen, its foundation. Its walls, however, were interwoven with reeds.

Royal residences aimed at greater stability and are described as 'Pāsāda' and 'Vimāna' to distinguish them from ordinary dwellings. Towns had forts (durga). Walls and ramparts (prākāra) were also constructed to protect the towns, forts and palaces; ditches (parikhā) were also dug

to ensure safety against an invasion. The walls were interspersed with gateways mounted by watch-towers (dvāra-koṭṭhaka, aṭṭālaka) The gopuram, an elaborate gate, (wrongly translated by some as battlements) is mentioned in the Jatakas. Temporary structures like pavillions, rest-houses and camps have also been mentioned.

These different sorts of buildings necessarily required pillars (thamba, khamba, thuna). A kind of pillar set up near city gates as a barrier was called 'Esikāni' (No. 182, 545). Railings, balustrades and platforms were also not unknown. The description of an 'ummaga' or an underground tunnel (No 546) which a certain person, named Mahosadha, had constructed in order to elude the pursuit of his enemies is an instance which shows that underground structures were also not unknown in those days The description of the tunnel is worth quoting:—

"Sixty thousand warriors were digging the great tunnel. Seven hundred men were working at the lesser tunnel. The earth they brought out in leather sacks and dropped in the city and as they dropped each load they mixed it with water and built a wall The entrance of the great tunnel was provided with a door eighteen hands high, fitted with machinery, so that one peg being pressed all were closed up (cf. Avapāta in Kauṭilya's Arthaśāstra). On either side the tunnel was built up with bricks and worked with stucco; it was roofed over with planks and smeared with cement and whitened. In all there were eighty great doors and sixtyfour small doors. * * * On either side were a hundred and one chambers for a hundred and one warriors: * * Each had a statue of a woman, very beautiful—without touching them no one could tell they were not human Moreover in the tunnel on either side, clever painters made all manner of paintings, the splendour of Sakka, the zones of Mount Sineru, the sea and the Ocean etc., etc."

References to temples of gods, designated as 'Devakulas' or 'Cetiyas' are found in these stories. This shows that such structures were also in vogue. The word 'dévakula'

degenrated gradually into the Bengali and Oḍiya word 'deula' indicating a temple. A dévakula is mentioned in one of the royal grants of the Pāla kings of Bengal[1].

A fair idea of the materials used in and the artisans engaged for construction and decoration may also be formed from these stories. Carpenters were employed for the construction of a dwelling house (No. 466) This shows that the material used in constructing even ordinary dwelling houses was wood, and that their construction required the carpenter's skill. Story No. 156 gives some details which show how the carpenters "used to shape beams, and planks for house-building (Gehasambhāradāruni) and put together the frame work of one-storeyed or two-storeyed houses, numbering the pieces from the main post onwards". As wood afforded facilities for polish and also for giving all sorts of shapes to the structures and decoration, and as the country abounded in this mateial, it appears to have been used freely from the earliest times, even while constructing public halls and palaces. A carpenter, who is said, in one of the stories, (No. 31) to have "built a public hall" is described as drying the "pinnacle wood". A king, wishing to have the pillars of his palace renewed, is said to have sent for the carpenter who thereupon "looked about for a tree that would do" (No. 121). In another story (No. 465) a palace column is said to have been designed and shaped out of the trunk of a tree. The pinnacle of a king's room was made of Śiṃśapā and Sāra wood (Nos. 396 and 418).

A scientific system of collection and classification of different kinds of wood, used in constructing different kinds of structure or different parts of the same structure, appears to have been established on a practical basis. It was obviously the result of long experience. The elaborate rules which had to be observed and the ceremonials which had to be performed while going to the forest to select the

[1] Sloka 50, Khalimpur grant of Dharmapala—vide Gauḍalekhamālā, p. 16.

necessary wood were set forth in detail in the Vāstu literature of a later age[1]. The Jataka stories, however, indicate that this practice had already commenced. Wood carving, wood-painting, and painting on walls appear to have been fairly in vogue, as is evident from the story of the tunnel.

Various metals including gold and silver and in some cases jewels, were used in the decoration of these structures and the "seven precious things" used for the same purpose had acquired a technical significance. Iron appears to have been more largely used and a story (No. 530) refers to a dome of iron raised over a king's palace. The 'Esika' pillars are said to have been made of sixteen or eighteen kinds of precious things (ratna)

The Jatakas clearly indicate that the use of bricks was known to the people of the time. References to bricks, both burnt and unburnt, are found in the Śatapatha Brāhmana and in the Śulva sūtras. The story of the tunnel shows that bricks were in use at that time. In the description of the underground tunnel, there is nothing to show that they were not burnt bricks. Dr Rhys Davids is of opinion that in earlier times "the superstructure of all dwellings was either of wood-work or brick-work" (Buddhist India, p 68). The Vinaya Pitaka, compiled not long after the Parinirvāna of the Buddha, makes mention of the Buddha's permission that his disciples might use bricks in the basement of their halls, stairs and roofings of palaces (Cullavagga V 11. 6; VI 3 11)[2]

The use of stone in ancient Indian architecture is still a controversial matter; because no archaeological evidence available up till now takes us beyond the Third century B C. As the historical sites of ancient India have not yet been thoroughly excavated, it will not be safe for us to assume that stone was not used in Indian architecture before the Third century B.C. Dr Rhys Davids notices that "in the books referring to this earlier period, there is no mention of stone

[1] Matsya Purana, chap. 257.
[2] Mohenjodaro excavations have revealed burnt bricks

except for pillars or staircases. A palace of stone is only once mentioned and that is in a fairy land" (Buddhist India, p. 68). This palace of stone has been referred to in connection with Jataka story (No. 545) (Pāsādā ettha Silāmayā). Direct references to the use of stone may be found in other stories also. Thus we read of bases of pillars like mortars of stone (Udukhala Pāsānam) in a story (No. 514), throne of yellow marble (No. 519); Giri Durga or hill fort (No. 516); and of a stone cutter (Pāsānakoṭṭaka) and stone pillar (Silāthambham) in story No. 476.

Here we get a reliable evidence to show that stone was used in some parts of ancient Indian structures But the existence of buildings made entirely of stone cannot be safely inferred from it. Stone was easily available and was freely used for many purposes. The reference to a palace of stone, though assigned to a fairy land, cannot be ignored as entirely imaginary.

References to crystal palaces (Phalika Pāsāda—No. 378; Phalika Vimāna No. 439) occur in the Jatakas. In one story the Bodhisattva is said to have been a stone cutter by birth. He was an expert in his work and built houses with the materials collected from the ruins of a village (No. 479). The Piprawa casket was a finished article in crystal. Its perfection of construction evidently indicates extraordinary constructive skill which must have been the result of age-long practice. In the Vinaya rules, we find that the Buddha allowed his disciples to make use of stone not only in the basements of their halls, stair, flooring and walls but also in the roofing of their houses. (Cullavagga VI. 3. 11). This is an interesting literary proof of the fact that stone buildings existed in the age prior to that of Asoka. Jarāsandhakā-Vaiṭhaka at Rajgir, the approximate date of which was the Sixth century B.C., if not earlier, and which was "built wholly of stone neatly fitted together without mortar" supplies an instructive archaeological proof. Structures of this kind must have been few and far between in the earliest times when less permanent structures satisfied

ordinary requirements. This may account for the rarity of stone-buildings in that age. But, the few examples and literary references cited here may be safely accepted as reliable evidence of the fact that the ancient Indians knew how to use stone in architecture. (Full discussions in Chapter XXVIII).

The Jataka stories reveal the interesting fact that architecture had already come to be recognised as a branch of art. In story No. 353 the epithet 'Pariyadātasippam' is applied to the carpenter It shows that the carpenter's work was recognised as an art. An attempt to make the structure beautiful and artistic in form appears to have been the ambition of the artist from the beginning. The heavenly mansions mentioned in the story No. 541 are described as being' 'symmetrical and well proportioned" (Upétam Bhumibhāgéhi Vibhattam Bhāgasomitam). In another story (No. 530) a structure is said to have been "four square with four fold doors in each, in due proportions spaced" (Chatukkannā Catudvārā Vibhattā Bhāgasomitam) The story of the tunnel (No. 546) shows that structures were made beautiful by wall-paintings the subjects of which disclose a wide range The next story refers to painted doors. Another story (No. 524) describes a dwelling in the following words:—

"A dwelling bright in splendour, to outvie
The lightning flash that gleams athwart the sky.
Fashioned with gems and gold divinely fair
And decked with paintings manifold and rare".

Decorated rooms and chambers (Alamkata Sirigabbha) are mentioned in story No 458. The Cullavagga (VI. 3) not only refers to plaster works of different colours—white, black, and red but also contains directions as to how to prepare them. It also lays down instructions relating to the art of drawing pictures on plaster works. (Vide Dr. Rhys Davids' Buddhist India, p. 68). In story No. 541, divine mansions are described as being "set around with Indra's statues". The description here is no doubt of an imaginary divine mansion but in the story of the tunnel, however,

we get the description of a terrestrial tunnel adorned with female statues.

A standard measurement for the construction of buildings appears to have been adopted from the earliest times The terms "Kukku" and "Vidatthi" which are technical terms to denote measurements employed in architecture occur in the stories. According to the commentator the word "Kukku" meant "Aratni" i.e. a cubit, "Vidatthi" was equivalent to the Sanskrit word "Vitasti" meaning a span. The height of the door of the tunnel already referred to is said to have been eighteen cubits. Similarly, a turret is described in the following words:—

"The peak's a cubit and a half in height.

Eight spans will compass it in circuit round" (No. 396).

Different kinds of palaces (Kokanāda, Pushpaka, etc.) having different forms are mentioned. Some were constructed with only one pillar (Ekathunakam or Ekathambham) as in the stories (No 121, 454 and 465). The translator considers that those buildings were "round towers". Palaces with many columns were not unknown. This is clearly indicated by the expression 'Vahuhi thambhehi Pāsādakaranam' which occurs in story No. 465. In story (No. 543) a palace with thousand columns is also mentioned (Sahassathambhā Pāsādā). Palaces were surrounded by walls having gateways. Different sorts of walls were also used. The walls of buildings were called "Bhitti' and their foundation "Bhittipada" (No. 489). Verandahs or porticoes were attached to buildings and were called "Alindaka". The term "Uparipāsādatala" or the 'upper storey of a palace' covered with a roof surmounted by a pinnacle called "Kannika"[1] (stories Nos. 396, 418) shows the development that took place in the science and art of architecture. The form of the pinnacle may be guessed from the word "Thupā" which the writer has used while describing it (No. 541). Palaees with many pinnacles and storeys

[1] Acc. to Coomarswamy, the word means a 'circular roof plate' and not a dome or tower (J. A. O. S. 1930). But even then it signifies existence of circular towers on buildings.

are also mentioned in some of the stories. The following significant sentence occurs in story No. 525:—

"Pupphakam nāma Pāsādam āruhya sattamāya bumiyā thito" i.e. having got upon the palace called Pushpaka, he stood on the seventh storey. The 'Pushpaka' kind of Prāsāda is also mentioned in the Ramayana and the later Śilpaśāstras. Seven-sotreyed Ziggarats of Chaldea and many-storeyed later buildings in Ceylon show that such structures were planned and built in many countries perhaps under a common idea The reference to such structures in the Jatakas need not be regarded as instances of borrowing from Chaldean models. The drawings of buildings casually represented on the Sanchi and Bharhut gateways before the birth of Christ give us a fair idea of the style of ancient architecture. The figure of a domed hall sculptured on the Bharhut Rail throws some light on the nature of the building, with five Thupas as its pinnacles, mentioned in story No. 541 The word "Torana-dvāra", which occurs in the Jataka (No 537 and 404) indicates arched doors or windows. Such doors and windows are also found depicted on the Bharhut gateway. This shows that they used to be constructed in very ancient times

The word "Gopānasiya" in a Jataka story (No 396) deserves attention It obviously suggests the Sanskrit word "Gopānasi" which, according to "Amarakosha", (Puravargādi) means the curved wooden rafters supporting the roofs of balconies.

Representations of such roofed balconies may still be found in the carvings on old gates. Such balconies have been found also in later times. The Vāstu-Śāstras contain reference to their existence in temples.

Watch towers with quarters for the watchman called "Aṭṭālaka", and simple towers without such quarters called "Koṭthaka" near or upon the gateways of towns, and "Maṇdapas" or pillared halls used as rest houses for travellers are also mentioned in the Jatakas. The references show that they were essential features of big cities and fortifications (Nos. 534 and 458). Some idea of these

structures may still be formed from a description in the Jataka story (No. 546) viz., "Attālakā oṭṭhagiviyo lohitaṃkomasāragallino". This has been taken to mean "watch towers whose mimic lips and necks (are) with rubies or cat's eye jewels". The words "mimic lips and necks" are evidently technical names of mouldings which formed a beautiful feature of Indian buildings. References to such mouldings are found in later Śilpaśāstras.

Pillars are described in these stories as being made not only of wood but also of stone. In every case they are mentioned as pillars with eight faces—Aṭṭhamsa (Nos. 541 and 543). Octagonal pillars which have come down to modern times, thus appear to have been introduced in the earliest age. The construction of such pillars is enjoined in the Śatapatha Brāhmaṇa (3. 6 4. 27). Pillars of fantastic shapes, as we find in the Cullavagga (VI. 14) appear to have been built according to the fancy and desire of the builder. Viśākha wanted for the Saṁgha a "Sālindam pāsādam hatthinakhakam" which, as Buddhaghosha has explained it in his commentary, means a mansion with verandahs decorated with or supported on "the frontal globes of elephants" Drs. Rhys Davids and Oldenburg have translated the expression thus:—"a storeyed building with a verandah to it, supported by capitals of elephant's heads." This description not only shows the use of capitals surmounting the pillars but also the artistic shapes devised for them. Many specimens of such capitals are still found amongst the surviving structures, as for instance, the columns in the nave of the Karle chaitya and those in the Gateways at Sanchi. (For Hastinakha see Chap. IX).

Doors, windows, lintels, stairs and cornices are incidentally mentioned. A staircase is called "Sopānam" (No. 483). Some buildings had more than one staircase. Door lintels were called "Uḍummāra" which is same as the Sanskrit words "Udumbara" or "Uḍumbara" (No. 303). The word primarily indicates a species of the fig tree. It is probable that the word came to have a technical meaning to indicate

a lintel because orginally lintels used to be made of this particular tree. Windows were devised for purposes of ventilation. That this was their main purpose is clearly suggested by their name "Vātāyana" i e. "passage for the entrance of air". Windows of different shapes and different decorative designs are also mentioned (No 262). Latticed window or window with perforated screens appears to have been common. This is indicated by the reference to a class of windows named "Siṃhapañjara" (literally meaning "a lion's cage") which has been taken to mean "latticed windows".

The word Chaitya orginally derived from the word "chiti", came gradually to be understood, in the Jataka period, in several general and technical senses. It referred to shrines of all sorts as well as those of a particular type. The "chaitya" does not appear to have been an invention of the Buddhists. Similarly, the word "Thupa" which occurs frequently in the Jatakas has not been used in the technical sense of a Buddhist structure of that name. Stupas were built either as memorials or receptacles of the remains of the deceased. A king "taking his father's bones from the place of cremation erected an earth mound in his pleasure ground and depositing his remains there adored the tope with flowers" (No. 352) Topes of sand were also raised over the ashes (No 438). A stupa of sand is still erected by people who perform the Śrāddha ceremony at Chakratirtha at Puri. The custom of erecting Topes of sand on the remains of the deceased perhaps indicates the primitive methods of Stupa-construction and the custom finds a mention in the White Yajurveda (Chap. 35). The mention of such structures in the Jataka stories does not show how far the art of constructing these memorial structures had developed in that age. Dr. Rhys Davids has shown that baths and drains were also constructed in that age. Such constructions indicate considerable development of architecture in the Jataka period.

In a story (No. 519) we find the description of a city with ditches and moats around. The streets were lined with

houses and shops. Such description of towns in the Jatakas are very similar to those found in the Epics.

यथापि अस्स नगरं महन्तं
आड्डारकं आयसं भद्दशालम
समन्तखातापरिखा उपेतम् ॥

Thus the Jataka stories supply us with valuable information regarding the state of Indian architecture in that age. The existence of the Vāstuvidyā in a developed form may also well be inferred from the study of these stories. (See Coomaraswamy's articles in 'Eastern Art', Vols. I-III).

CHAPTER VIII

ARCHITECTURE IN PALI CANONS

THE pali Buddhist religious texts contain many incidental references to the condition of early Indian architecture. The Mahavagga and the Cullavagga, when carefully examined, yield many information about the subject It may be noted at the very outset that in the pali books we have clear reference to the Vāstuvidyā or the science of architecture Thus in the Digha Nikāya in the Brahmajālasutta (Secs 21 and 27), it is said that the brahmins used to practice the Vāstu-vidya—mentioned here as 'Vatthukammam' and 'Vatthu parikiranam' The pali Jataka stories also refer to this science

When the pali canons were compiled, architecture had already attained to a considerably developed state The references indicate that considerable progress had been made in this direction not only on utilitarian but also on a highly artistic basis Particular structures had already got various forms The descriptions of buildings are almost similar to those found in Sanskrit literature and the Vastu works

The fifth and the sixth chapters of the Cullavagga contain the names of the structures which were, according to tradition, permitted by the Buddha to be used by his disciples These two chapters are the main source of our knowledge which is supplemented by references from other books

Houses were called Lenas (Layana in Sanskrit) Five kinds of buildings were allowed to be used by Buddha's disciples viz, Vihāra, Addhayoga, Prasāda, Harmya and Guhā Each of these must have possessed some special features distinguishing it from the rest The word Vihara is often used in the sense of a monastery in general, but in the age represented by this Vagga, the term must have denoted a special kind of structure The old rock-cut caves now found in various places of India may be divided

into two distinctive classes—the Chaitya and the Vihara. The Vihara of the Pāli canon might, therefore have been the structural prototypes of these rock-cut Viharas. They consisted of a large hall having small cells all around, most of which were to be entered from the central hall. The monasteries at Sarnath and Nalanda may also be taken to represent the ancient form of the Buddhist Viharas. The mention of it in the Cullavagga may suggest that Viharas existed even before the rise of Buddhism (See Chapter XXVI).

The word 'Addhayoga' is still more difficult to be explained. Buddhaghosa explains it by saying "Suvarna vangagcha" which may mean either "a house made of gold and tin' or a peculiar kind of building prevalent in a country then known as Suvarnavaṅga. The latter meaning is doubtful on account of the fact that we do not know of any place called Suvarnavaṅga. A similar word has, however, been mentioned as the name of a country in the Arthaśāstra, where Suvarṇakudya has been referred to along with Gauda If Suvarnakudya be taken as the same as Suvarna vanga, the word may be taken to refer to Karna-Suvarna, the famous province in Bengal. The house of Addhayoga type may then be taken to denote the ancient Bengali house which is represented in the few surviving temples of Bengal, the Jorābāmlā type of temples. Buddhaghosa's "Suvarnavanga géha" has, however, got another reading "Suparnavanga géha" which means a house shaped like the Garuda bird. This reading naturally suggests a form for the Addhayogas very common to Indian structures. The altars were constructed, according to the Śulvasūtras, the Ramayana and the Mahabharata, in the shape of the Garuda bird. The Matsya Purana, Bṛihatsamhitā and other Vāstu works refer to temples called Garuḍa, because they were similar in shape to the bird of the same name. The addhayoga buildings may, therefore, refer to the Garuḍa class of buildings.

Prāsādas were the most common type of Indian buildings and references to it are innumerable in Indian literature.

They were the many-storeyed towered buildings of ancient India In Pali literature they are described as having an 'alinda' (veranda) and a hastinakha' (See Chapter VII and IX) Prāsādas thus existed before the rise of Buddhism (See Chapter XXVI)

The 'harmya' denoting a class of building is also very common in Indian literature It occurs in the Rigveda as denoting an especial class of building The lexicographers do not lay down the characteristic features of this type of building but simply explains it as 'dwellings of the rich' The silpaśāstras, however, show that Harmmya was a particular type of building (see Samarāngana Sūtradhara and Mayamatam) Buddhaghosa also was acquainted with the real meaning of the word when he explained it by a prāsāda on whose top has been placed a Kutagara This meaning is almost similar to the definition of the word in the Samarangana Kern takes the word to mean a stone house with a flat roof ' and a verse in the Mayamatam may point to a similar meaning Why Kern took it to denote especially a stone house cannot be ascertained

The Guhā was the artificial or the natural cave Buddhaghosa explains it by Guha made with bricks, Guha of stone, Guhā of wood and Guhā of sand Guha, therefore, refers to the buildings under the ground The Silaguha may denote the rock-cut caves and the others were perhaps similar to the buildings in the tunnel of Mahosadha of the Jataka stories and the underground chambers in royal palaces as described in the Arthasāstra A brick-built Guha called the Jogi Gumphā still exists in the Dinajpur District in North Bengal

Besides these five classes of buildings, mention is found of the Śālā and the mandapa The mandapas had basements under them, as is evident from epithets Nicavathukam" or "Uccavathukam"

The buildings consisted of many chambers called the garbhagriha They were of three different forms the Sivikāgarbha, Nalikagarbha and Harmyagarbha The Sivikāgarbha was similar in shape to the palanquin Buddhaghosa therefore, explains it as "a square chamber" The Nāli-

kāgarbha was one having its length twice or three times as much as the breadth, which, therefore, was rectangular in shape. The meaning of Harmyagarbha is not clear and even Buddhaghosa is in doubt about its significance. He gives two meanings "a chamber consisting of a Kūṭāgāra (a small room) on an upper storey" or one "Mudaṇḍacchandana" which cannot be explained. The first meaning may refer to rooms having another small chamber on the wall of the former, as is still to be found in many houses. Small subsidiary chambers were known as Koshṭhakas, used as store-rooms or bath rooms.

Around the chambers were the pakuttha or the 'inner Verandahs'. Outside it was the covered terraces called the Alinda or a porticoe. In the buildings having no alinda, a shed was constructed over the doorway for throwing off the rain-water, called Osaraka or Apasārakas.

The walls were called the "bhitti". Those of many of the ordinary houses were first covered over with skin and then plastered over with Sudhā or lime. Richer houses had stronger walls made of bricks and the lower parts of the walls of even a bath room were built of brick. The buildings had enclosure walls built of brick, stone or wood.

The roof of many houses were covered over with skin, plastered over with Sudhā This kind of roof is referred to as the Sudhācchadanam. Roofs of bricks (Ishṭakācchadanam) and stone roofing (śilācchadanam) are also mentioned which indicate buildings completely made of bricks or stone. Whatever might be the actual age (It could not be later than 4th century B C) when these chapters were written, do these references not clearly point to the existence of stone or brick architecture in India? Strangely enough, these stone and brick roofs mentioned in the Cullavagga have not been mentioned by any scholar who utilised the other materials from these chapters.

The doors, windows and stairs have been described in these chapters in detail. The door-leaves are called Kapāṭa, the post and the lintel called the 'prisṭha saṃghāta'. Presumably, the doors had no hinges; but the upper and lower

ends of one side (called pāsakam) projected into hollows prepared for them in the lintel and the threshhold. The bolt was called the Sucikam and the piece of wood through which it passed was the Kapiśīrsaka, perhaps because it resembled in shape the head of a monkey. (See Arthaśāstra).

Windows were known as Vātapāna or Vātāyana and they were of three kinds-Vedikā-vātāyana, Jālavātapāna, Sālaka vātapāna. The vedikā windows, according to Buddhaghosa, were those resembling the railings of a Stupa. The Jāla Vātāyanas were the latticed windows, and the śālakavātāyanas contained bars or pilasters in it The window-blinds are perhaps meant by the word Vātapānacakkalika.

Stairs were made of brick, stone or wood. The balustrade was called the Ālambana Vāhana. In the Mahasudassana Sutta (I. 59), a sopāna is described as having steps containing a thamba (post), a suciya (cross bar) and an ushnisha (coping bar) running along the top of the posts.

The descriptions of the various structures supply information as regards the materials used Mention is made of thatched cottages, wooden houses, houses with skin over the walls and roofs. Use of brick and stone is mentioned in connection with the construction of basements, stairs, floors, enclosures. part of the wall and the roofs. The mention of brick-made and stone-made roof warrants us to infer that stone-built and brick-built houses were not unknown in ancient India.

Various kinds of plasters—used over walls and roofs—are mentioned. They were of different colours—white, black and red. To make the plasters lie fast on the walls, a kind of slime of trees (Ikkāsa) or a paste (pellhamaddan) was used. One kind of such paste was made of mustard seed and oil of bees wax. Over these plasters, paintings were inserted in order to decorate the walls and the roofs. The various motives of these paintings are mentioned in a list in the Vinayapiṭaka e.g. wreathe-work, creeper work and so on. (Vide Buddhist India, p. 68). This list of paintings is similar to one mentioned in connection with Mahoshadha's underground chamber of the Jataka story. Figures of men and

women and other imaginative subjects were prohibited to be painted on the walls of the Viharas. The painted chambers are called chitrāgāras' which may be equivalent to the word, 'Chitraśālā' in the Epics These paintings, therefore, prove the artistic development of the Indians, which culminated in the magnificent paintings in the Ajanta Caves.

The many-storeyed dwellings, the underground chambers and the stone roofs indicate the developed engineering skill of the Indians The painted chambers, the latticed windows and the stair-balustrades attest to their aesthetic culture. The drains, the dams and the baths, described by Rhys Davids, are further proof of the developed state of Indian architecture

CHAPTER IX

ARCHITECTURE IN KAUTILYA'S ARTHAŚĀSTRA

THE newly discovered Arthaśāstra ascribed by its finder to Kautilya, or Chānakya, the famous priestminister of Chandragupta Maurya is a source of much rich information to the historians of India. Whoever might have been the real author of the work and whatever might have been the real age when the book got its present shape, there can be no denying the fact that the book contains many old traditions of the various spheres of activities of the Indian people. The state of architecture as found in the Arthaśāstra is, therefore, an interesting and valuable study and cannot be later than that of the First Century A.D.

Besides the numerous references scattered throughout the book, the Arthaśāstra contains several chapters mainly or solely dealing with architecture. But as it is a totally non-religious work, the subjects dealt with in these chapters all refer to the structures of civil nature as opposed to the religious. Very few structures of civil architecture of ancient India survive at the present day and very few have also been re-excavated. So there is now no means of verifying the descriptions as found in the Arthaśāstra, and passages are apt to be wrongly interpreted. In spite of these difficulties, a thorough study of the relevant passages with the help of the later works on Architecture, may be helpful for a complete investigation of the ancient Indian architecture.

Buildings including other engineering work were called 'Vāstu'. In book III, Chapter 8, the word Vāstu has been defined thus: "Houses (or the sites of houses), pleasure gardens (Ārāma), "Setubandhas" (or embankments and bridges) and lakes are called "Vāstu". This meaning of 'Vāstu' is also apparent from the definition of the Śilpa-Śāstra (a part of which was the Vāstuvidyā) as given by

the Śukranīti-Sāra which says, "The sages called that the Śilpaśāstra (Treatise on Fine Arts) in which are related good works such as the Prāsāda (Palaces or temples) and images, Ārāmas (pleasure gardens or groves), houses, and the tanks."[1] The definition of a 'Vāstu' as given in the Mayamatam[2] also bears a resemblance with that given in the Arthaśāstra. The Arthaśāstra, however, does not directly refer to the technical science of Architecture (the Vāstu-vidyā) which in some form or other must have been known to the Indians from the time of the Gṛihyasūtras and the Pali Jātaka legends. But the several chapters, dealing with architecture in the Arthaśāstra, cannot but be repetitions of the old traditions, prevalent from an earlier period in India, relating to Indian architecture The technical words used (noted in the following pages) and the complex character of the constructions presuppose the existence of a science. In the chapter dealing with the construction of forts, one of the suitable sites for a fort is said to be "a land best suited for a Vāstu" (Vāstukapraśastadeśa). As the term has not been further explained it shows that the Indians well knew the rules for selecting the best site for a building, which formed one of the essential parts of the Vāstuvidyā.

The different kinds of roads with appropriate names for each are the further proofs of the existence of a developed science of architecture.

What was the form of the Vāstuvidyā in this perod we have no direct reference to prove. But from several expressions it may be concluded that the most essential features of it had already been enunciated and the regulations were being followed in practice. Two passages in the Arthaśāstra suggest this conclusion. In the chapter dealing with the 'Planning of the fort" (Durga niveśa, Book II, Ch. 4), it has been said that "The king's private dwelling house (Antaḥpura) should be constructed, according to rules already laid down, facing either the north or the east, in the midst of the houses of the people of all the four castes and to the north

[1] Śukranīti, Ch. 49. 299.
[2] Mayamatam, Ch. 2.1.

from the centre of the ground ("Vāstu-hridaya") and occupying one ninth of the whole site inside the fort (navabhāge)". The expressions Vāstu-hṛdaya and 'Navabhāge' can be best explained with reference to the Śilpaśāstras. According to all the works on Architecture, a Vāstu in the sense of the ground occupied by a building is said to consist of several Padas or divisions, their number varying according to the nature of the building and each being the resting place of a presiding deity. The centre was thus the place for Brahmmā. The whole site was compared to the body of a man and the central Pada was called the "Hridaya" or the heart of the Vāstu. This explains the significance of the word 'Vāstuhridaya' in the passage Again, according to all the texts, the site of a dwelling house should be divided into 81 Padas, the whole area being so divided that each side should have nine Padas. The significance of the prescribed site and the area (viz 1/9 of the area) for the dwelling house is that it should occupy 9 Padas in centre [1] The doubt that may still be held as to the real existence of the system mentioned above in the time of the Arthaśāstra is completely removed by the second passage, which occurs a few lines after the one quoted above

After describing the temples to be constructed in the centre of a city, the author says that "In the Kosthakālayas" the Vāstudevatās should be set up according to their fixed position

The word Kosṭhakālaya is formed of two words "Kosthaka and Ālaya and means the Ālayas or temples on the Koṣṭhas. In the Śilpaśāstra this word 'Koṣṭha' means the divisions or the Padas referred to above (Brh Sam. 53.46). They were, each of them, as already said, presided by a deity called a Vāstudevatā and the passage in the Arthaśāstra, therefore, must be taken in this light to direct that in each division of the vāstu (site) a temple of the God, said to preside over that particular Koṣṭha or division, should be constructed. The real significance of the two passages

[1] The Vāstuśāstras prescribe the division of the site of the royal houses into 81 Padas. (Samarang S., Ch. 15.9).

quoted above cannot be explained unless we hold that the Vāstuvidyā with its complicated ceremonials was perfectly known during the period described by the Arthaśāstra. Dr. B. B. Dutt's (Town-planning in Ancient India, f. n. p. 149) opinion that Padavinyāsa was unknown to the Arthaśāstra cannot be supported.

Private houses were mostly of a flimsy character. Indian villages must have been full of cottages as they are even at the present day. But at least in the towns, houses were constructed on sanitary and regulated principles, violation of which was punished by the state. These rules, occurring in the Book IV, Cha. 8, mostly relate to the position of drains and other places of refuge, to the space that should have had to be kept open between two houses, and to the means for ventilation of air in the rooms. Each house had an 'Anidvāra' (i e a gateway) and a boundary wall. Windows were small and had to be raised on high. A special rule is laid down to ward off the evil consequence of rain, but the true nature of the construction cannot be made out from the text [1] From the sūtra, the only point to be inferred is that "Kata" or mats were used in parts of the buildings Mr Sham Sastry takes them to be forming the covering of the roofs. But the meaning seems to be inconsistent with another rule which directs the officers in charge of the town to pull down those roofs which were covered with mats and grasses.

Of the more substantial and artistic structures, the most important is the king's palace called a "Prāsāda". Structures of other kinds are indicated by the words 'Harmya', 'Sabhā' and the like, each of which referred to peculiar kinds of structures. Fortified towns or capitals were call 'Durga' and elaborate descriptions of the fortifications form the major part of the chapters dealing with architectural matters. Ditches, ramparts, walls and watch towers of different forms were the several features of a fortification. Gateways of different forms adorned the entrance to a city

[1] Arthaśāstra, translation by Shamasastry, p. 212 (1915 Edition).

or a palace. Those on the city gates were called Gopuram and those forming the entrance into the houses were called 'Toranas'. The treasury house, the sheds for merchandise, the prison houses and underground rooms were the other notable constructions of the period.

Structures on the borders of capital—those meant for guarding the city—are described in detail in the Artha-śāstra. The ditches were called 'Parikhā'. They were dug outside the city-wall and were three in number, one six feet (1 daṇda) apart from the other. They were 14, 12 and 10 dandas respectively in width and the depth was half or three-fourths the width. Thus their depth varied from 30ft. to 63ft. The bottom was made into a square(?) and as the two banks were made with a slope inwards, the width of the ditches at bottom was one third the width on their upper part The sides were then inlaid with bricks (ishṭakena) and slabs of stone They were filled with water either of the rains or from some other source, contrivances to flush them, whenever necessary, were perhaps not unknown.[1]

At a distance of 4 dandas or 24 ft from the (innermost) ditch, a rampart (Vapra, Chaya) was made by heaping up the mud raised from the ditches. It had the form of a platform or the sides in its middle part might have bulged out a little giving a pitcher-like shape to the structure. The rampart was 6 dandas or 36 ft high and twice as much in depth.

The rampart formed the foundation for the city wall called the Prākāra or the 'śālā'. The wall was made of bricks or thick slabs of stones. It had a width or depth of 12 cubits or might have more, the maximum being laid down at 24 cubits (or 36 ft.). The height was twice the breadth (i.e. from 36 ft to 72 ft.). Thus the wall together with the rampart formed a barrier with a height which ranged from 72 to 108 ft. The depth of the wall was sufficient for chariots to pass over them and perhaps such passages were meant

[1] Cf Samarāngaṇa S., Ch. 10, verses 17-22.

by the word 'Rathacharyā-Sañchāram' which was an epithet of the Prākāras. The uppermost part of the wall was decorated with turrets of different materials and forms; some resembled a drum and were made of the trunk of a palm tree, others were made round in the form of the head of a monkey.[1] It has been directed in the Arthaśāstra that city walls should never be made of wood. This has been taken by Winternitz as showing the difference between the state of architecture in the Arthaśāstra and that as described by Megasthenes, the Greek envoy of Chandragupta's court. According to Megasthenes, Pataliputra, the capital, was guarded by a wooden palisade. The condition of architecture as found in the Arthaśāstra is, according to Winternitz, therefore, of a later date than that of the early Maurya period.[2]

"Aṭṭālakas" or watch-towers were built over the wall. They were square in shape and access to them was by movable staircases rising up to the height of the building. One tower was separated from the other by an intermediate space of 30 dandas (or 180 ft.).

Between each tower in the intervening space, stood a two-storeyed 'Pratoli' with a harmya on it and measuring (in height) twice and a half as much as it is broad. The exact nature of the 'Pratoli' cannot be ascertained. The word is, however, an important one, for its occurrance in the Bilsad stone pillar inscription of Kumaragupta of the year 96 Gupta Era (416 A.D.). In the Gupta inscription, the structure[3] has been compared with a 'Staircase of heaven' and Cunningham interpreted the word as 'a gateway with a flight of steps'. Dr. Fleet accepted the interpretation. The description of the building as a two-storeyed one, as evident from the description in the Arthaśāstra and the

[1] 'Kapiśirṣa' was a sort of turret mentioned in later Śilpaśāstras, and had the shape of a monkey's head (cf Samar. S , Ch. 10. 25-32).

[2] The difference may be explained by reference to what Megasthenes says about materials used in Indian buildings—on rivers and on high places (*see* below).

[3] Fleet—Gupta Inscriptions no. 10. 10.

Samarāṅgana Sūtradhāra[1], therefore proves that Cunningham was near to the truth in his interpretation of the Pratoli buildings. It is therefore certain that the word Pratoli had other meanings, besides that of a broad street, as given by the lexicographers, who made the word a synonym of Rathyā i.e. a chariot road Hemchandra seems to be more accurate in placing Pratoli and its synonyms by the side of the word 'Gopuram' another structure built over the entrances.[2]

In the space between the Attālakas and the 'Pratoli' were the small structures called the 'Indrakosha' which were perhaps small chambers made up of planks and having holes on its walls for throwing arrows There was room in it for three archers only The word is found noted by the lexicographers but the nature of the building cannot be made out from them

The entrance into the fort was through a Gopuram, an elaborate structure built above, three fourths of which resembled the face of a Godhā (Iguana), a crocodile-like creature most common in Bengal In front of the door was a structure called 'Hastinakha' which was, as explained by the lexicographers[3], an earthen mound at the gate of a city Commentators further explain it as a structure, built of earth, resembling the nail of elephants and gradually coming down with a slope to the city-gate The word also occurs in the Śiśupālabadham where it is described as a raised earthen mound, projecting the access to the gate of a city or fort and furnished with an inner staircase and with loopholes for discharging arrow From the mention of the word in the Arthaśāstra along with a 'Sankrama' or movable bridge, we may infer that the 'Hastinakha' was also used as a staircase for going out of the fort, as the commentators

[1] Sam S , Ch. 10, verse 38

[2] "Purdvāré Gopuram Rathyā Pratoli Viśikhā Samāh" (Abhidhāna Chintāmani IV 981)

[3] "Parikuṭam Hastinakho nagaradvārakutake"—Hemchandra Abhidhāna Chintāmani.

explain it to be.[1] The Cullavagga of the Vinayapitaka (VI. 14) contains this word, which is explained by Buddhaghosha as 'structure resembling the frontal globes of Elephants'' or 'supported on elephant's frontal globes'. (See Chap VII). Besides the 'Hastinakha' there was either a movable bridge as wide as the opening of the gate[2], or an immovable one, sometimes made of earth where there was no water There were twelve gates, each at the extremity of a street, piercing the city wall, four of which, each on one direction, were considered as the principal ones They were called the Brāhmma, Aindra, Yāmya and Senāpatva according, perhaps as they faced the north, the east, the south and the west. These technical names show the developed stage of the science of the Vāstu (vāstuvidyā) at the time of the Arthaśāstra.

Besides these artificial forts, there were the natural forts used at the time of wars by the kings. They are called Durga supplied by God (Daivata Durga), and were classified into Audaka (water fort), Pārvata (hill fort), Dhanvana (deserts) and Vana (forests). A water fortification is such as an island in the midst of a river or a plain surrounded by a low ground, a mountainous fortification is such as a rocky tract or a cave, a desert is such as a wild tract devoid of water and thickets or a land growing in barren soil, and a forest fortification is such as is "full of wagtail and water or full of thickets" This division of the natural forts may be compared with that made in the Manu-Saṃhitā, the Puraṇas[3] and later works on architecture. The description

[1] Puradvāre=vataranārtham kṛitasva kramanimnasya mṛitkutasya." (Bhānuji Dīkshit's commentary on Amarakosa).

Coomarswamy (J A O S 1928, p 259) takes the word to mean 'a pillar with elephant capital' or a 'draw bridge'. But the lexicographer clearly mentions that it was made of clay It was like an underground chamber with a slanting roof and not a pillar.

[2] I take the word 'Mukhasama' in this sense and am supported by Kshīraswami the commentator of Amarakoṣa, who quotes this very sentence.

[3] Devī Puraṇa, Ch. 72-11, 104-28.

in the Devī Purana, however, is the one most closely related to the Arthaśāstra passage

Inside the fort, to the north of the central part of the city, was, as already explained, the king's residence, covering a ninth part of the whole area.

The private quarters called Antaḥpura of the king was also guarded by ditches, walls and gateways, and comprised of many courtyards with houses surrounding each of them. The palace was constructed in the same way as the treasury house, which will be noted later on There were other kinds of buildings too. The king often lived in a delusive chamber with hidden walls and passages. There were also underground chambers and palaces connected with many hidden passages cut through tunnels. Other buildings were fitted with exits through hollow pillars and pits fitted with mechanisms for catching enemies and thus used as traps[1] The existence of underground structures is proved by the beautiful description of the Suranga, cut for the purpose of escaping from the enemies, in the Pali Jātaka story (Jataka No. 546) already mentioned. The description in the Arthaśāstra of different kinds of underground structures therefore should not be taken as pure fancies.

The walls of the palaces were generally made of bricks as is evident from the direction to make it Aistaka (Bk II, Chap 5) But in Book I, Chap. 20, it is said that the walls of the Antahpura should be covered over with mud mixed with "lightening-ashes" (Vaidyuta-bhashma) and hail water (Karaka-vāri), to make them proofs to fire This shows the existence of mud walls even in the rich man's houses. But as the terms 'Vaidyuta bhasma' and 'Karakavāri' are not clear, the mud used in plastering the walls must have been a specially prepared material, the nature of which is now unknown to us. A similar passage[2] occurs in the Matsya Purana (Ch. 219, V. 5-7) where the word 'Vaidyuta

[1] I have taken the word 'Avapāta' to mean 'pits for traps' and not the fall of house as Shamsastry takes it to mean

[2] See Chart comparing Arthaśāstra with other Śilpaśāstras.

Bhasma', is replaced by 'earth burnt by lightning'. This word in the Matsya Purāṇa is therefore clearer than the term used in the Arthaśāstra. The word Karakavāri, however, is not found in the Matsya Purāṇa and cannot be explained.

There were besides the king's quarters, a few structures in the fort, the nature of which cannot be clearly determined. They are a Sīmāgṛiha, two Pratimañchas, an Aṇi-Harmya, an uttamāgāra, hidden walls, staircases and toraṇas. These structures probably stood on the skirts of the city by the side of the gateways under the city walls

The treasury house which was also the model for the king's palace, consisted of an underground three-storeyed chamber coming upto the level of the ground and the main building, above the ground, covering the underground chamber inside it. The details of the construction are very interesting. A square pit was first dug into the earth, the sides and the bottom of which were then inlaid with thick slabs of stone Inside the pit was there made, of substantial wood, a cage-like house of three storeys. It was provided with one door, and a staircase fitted with machines. Above this chamber was constructed, of bricks, the main treasury house (or a palace meant for the king's residence) closed on all sides and having a plinth (Vapra) and a 'grīvā'. The use of these two words in their technical architectural senses thus affords important conclusion about the antiquity of the 'Vāstuvidyā'.

The chambers for keeping articles of trade and produce of the fields were many-storeyed chatuhśāla houses, having well-set rows of pillars of burnt bricks. The arsenal contained underground chambers and the prison house had secret chambers in it.

Thus the description of the fortified capital supplies us valuable information about the various kinds of structures of the period. The 'Indrakosha' towers, the underground chambers of the treasury-house or of a palace, the store houses and the like are a few examples of many-storeyed houses. The same fact is also evident from the expression

'Uttamāgāra' (Text p. 53, 216) which perhaps also means the upper storey of a building. The dimension of the tala or a storey is given as 15 cubitsrising to 18 cubits with an increase of 1 cubit in each higher grade. (Text p. 53). The existence of the Harmya class of buildings is evident from the Pratoli, another harmya within the fort (Text Second Edition, p. 53) and the one mentioned in connection with the Kumārī's temple. The nature of the Harmya class of buildings is yet unknown The Samarāngaṇa Sūtradhāra and Buddhaghosa (in his commentary on Cullavagga—see Chap. VIII) give one and the same meaning viz., a room on the upper storey, which seems to be applicable in the case of the Pratoli. The Mayamatam (Chap 26) explains the word 'Harmya' in a sense with which the word 'Munda harmya' (Text p. 54) in the Arthaśāstra may be compared[1].

An idea of the doors of the houses is afforded by the description of the doors of the underground palaces of the kings. They are said to have been carved over with the figures of Gods and of chaityas ("Āsanna Kāsthachaitya—devatāvidhānadvāram) Such decorations on door-frames formed an important feature of Indian architecture, all the texts laying down the subjects to be figured on them.

Another class of door is called the "mundaka-dvāra", the meaning of which is not clear from the text Torana and the Gopuram gateways have already been mentioned and perhaps refer to the boundary gate of a house. The door leafs were called 'Kavātayoga' or the 'Khandas' (Text p. 166), their joints the 'Sandhi' and the stands or the sills 'Vīja'. The symbolical names given to the four principal city gates have already been mentioned and from the names it may be guessed that the figures of Brahmmā, Indra, Yama and Kārtikeya were carved over the northern, eastern,

[1] The word 'Kumārīpura' is just before the word Muṇḍa harmya. The word Muṇḍa associated with Harmya here indicates its shape as in the Mayamatam in "Mundākāram Śirṣakam Harmyametat" (Mayamatam XIV. 100).

southern and the western doors respectively. The dimension of the door in the city wall is given in the Arthaśāstra. Their width might vary from 5 daṇḍas (30 ft.) to 8 daṇḍas (48 ft.) with an increase of 1 danda in each successive stage of the dimension. They were either square in shape (i.e., the height being equal to the width) or the height might be 1/6 or 1/8 times more than the width[1].

We get very little idea of the windows from the Arthaśāstra. The small and high windows of private houses have already been spoken of. A reference to the 'Jālavātāyana' (Text p. 216) however proves the existence of the latticed windows and shows the progress the Indians had made in the direction of window constructions.

The chatuḥśāla houses are often mentioned and this is the most characteristic type of ancient Indian buildings. The existence of 'Sabhā' classes of buildings is hinted at by a single reference to the word 'Sabhā'.

Pillars were called Stambha and Sthūna. The pillars in the store room, have already been mentioned, as being made of burnt bricks Hollow pillars in palaces used as coverings of secret passages point to the consummate skill of the Indians in constructing pillars.

In book II, chap. 21, the relative dimension of the different parts of a pillar have been stated. Three technical terms have been used there to indicate the different parts of a pillar. The lowest part called the 'Parikshepā' perhaps indicated the pedestal; the part above it upto the capital was the Nikhāta and the capital was called the 'Chuli'. That these are the meanings of the terms used here may be inferred from a passage in the Mayamatam (Ch. 15)[2]. The pedestal was 1/6 the height, and the capital was 1/4 the height[3]. The

[1] I take this passage to refer to the dimension of the door and not as explained by Shamsastry (P. 53).

'Chaturasra' should be taken in the sense here mentioned and the line should be read along with the preceding one.

[2] Mayamatam. See Table of comparison, Chap XI.

[3] This is what I take the passage to mean and the word 'nikhāta' cannot mean the "position dug into the ground".

dimensions, however, are not clearly intelligible from the passage. Another pillared structure was the "Upaśāla", or a small wall, which formed the enclosure round the outskirt of a village (III. 10).

It has already been mentioned that the gates of forts possessed either a draw bridge or a permanent one for entrance into or going out of it. Bridges were called Sankrama Another word 'Setubandha' was used both in the sense of a bridge and the embankment of a river or a lake Setubandha has been spoken of in one passage as one of the means of crossing the river. The word there clearly refers to a bridge. It also means a dam as is clear from the passage "The king shall construct the embankment (Vandhayet) of reservoirs (Setu), filled with water either natural or derived from some other sources". The Junagad Inscription of Rudradaman also contains this word (Setu) meaning an embankment. It was Chandragupta who first had the embankments of the Sudarsana Lake constructed by his governor of that province. The Arthaśāstra regulation referred to above was thus acted upon by the patron of Kautilya.

Religious edifices are but incidentally referred to in the Arthaśāstra. Hindu temples undoubtedly existed at that time; they were called 'Devakula', 'Devāyatana', 'Devatā gṛha', 'Devagriha' etc. These words, however, do not give any definite information regarding the peculiar shape or form of the temples of that period. Inside the city were erected the abodes of gods such as Aparājita Jayanta, Siva, Vaiśravana, Aświnī etc. The Goddess 'Śrīmadirā' is an interesting reference. She has not yet been identified. But we find her mentioned in Mayamatam, Śilparatna, Vaikhānasa Āgama and Atri-Samhitā (Ch 11.4) (see Appendix, Ch XI). Temples were also erected for the gods of the site (Vāstu), as already mentioned. The words 'Mandira', 'Prāsāda' which in later times were used in the sense of temple (though 'Prāsāda' occurs meaning a palace) are not to be found in the Arthaśāstra, a fact which perhaps points to the antiquity of the Arthaśāstra civilisation. That

some abodes of gods had an uttamāgāra (perhaps upper storey) is indicated by a passage (B XII. 5.)

The other two classes of religious structures were the Chaitya and the Stūpa. Chaityas used to decorate the door-frames of the king's palace. Here Chaitya may mean an altar which is the original meaning of the word. In another place (XI. 1) a Chaitya is described as having doors, where it might refer to a building of the Chaitya class of the Buddhists or a sacred tree which was often surrounded with a rail and a gate for entrance (Ch. Mahabharata XIII. 69). The exact nature of the Chaitya cannot therefore be ascertained from the Arthaśāstra which indicates it to be a Hindu structure. But in one passage the worship of Chaitya is mentioned (p. 256 trans) The Stūpa refers undoubtedly to the famous structures so called, but there is no means to ascertain whether it was of the Buddhists, or of the Jains or of the Hindus

The materials of ordinary buildings must have been wood as it is in India at the present time. The simplest kind of dwelling was constructed of screens of bamboo interwoven with reeds and straw and then plastered with clay, as the walls of the king's Antahpura have been mentioned to be. Roofs were often covered with mats. Timbers were also used in more ostentatious buildings. Its use may be inferred from many passages. Stone is mentioned to have been used in the sides of ditches and underground chambers and in the construction of the city wall. Buildings wholly made of stone are not elesewhere mentioned. Even the king's antaḥpura was not made of stone. The scarce use of stone in building points to the high antiquity of the traditions contained in the Arthaśāstra.

Bricks were, however, more extensively used. The side walls of some of the buildings within the forts are said to have been constructed of bricks; the treasury house and the palace over the underground chamber were 'aiṣṭaka' i.e., made of bricks. The banks of the ditches were also inlaid with brick and the city wall was wholly made of brick. In all the above instances there is no indication of the nature of the bricks

used, whether they were sun-dried or kiln-burnt. In the construction of the storehouses, burnt bricks were used in the pillars. So we have reasons to infer that burnt bricks were used in other structures too.

It has been observed before that a great contrast between the condition of Pataliputra as described by Megasthenes and that described in the Arthaśāstra is afforded by the stone or brick-built walls of the city mentioned in the latter book. But we can reconcile the two accounts by reference to another passage of Megasthenes collected from Arrian's work, which states that "Cities on the banks of rivers and other low-lying spots were built of wood, those in more commanding situations, where they were less exposed to floods, of mud or brick (Arrian—McCrindle)". If what Arrian says be true, we can explain the Arthaśāstra passage as making a general statement (handed down as a tradition from earlier authors) which however was not applicable in case of Pataliputra which was on the Ganges and the Son and so exposed to the floods. This apparent discrepancy therefore does not authorise us to draw any conclusion about the late date of the Arthaśāstra Sir John Marshall while noting the above passage of Arrian interprets the bricks, there mentioned, as being sun-dried ones (Cambridge History Of India, Vol. I) which the text hardly warrants us to do. The references to bricks in the Arthaśāstra, therefore, cannot be taken as an evidence of discrepancy between Megasthenes and the Arthaśāstra.

The state of architecture described in the Arthaśāstra was highly advanced, which may be observed from great engineering skill as well as the artistic devices. It has also been shown on various grounds that the chapters describing architecture in the Arthaśāstra must have been taken from ancient texts on architecture, which points to the existence of a full-fledged science of architecture (Vāstuvidyā) as early as the first century A.D.; even if not in the 4th century B.C. Frequent references to the artists and men trained in the fine arts (Kṛta Śilpa), and the difference between Kāru and Śilpa point to developed ideas of fine arts. The chapter

on town-planning is a further proof of systematised study of these things in India. The units of measurement used in architecture, which is given in a table form, are exactly similar to those found in the other works on Śilpaśāstra.

The scheme of town planning as given in the Arthaśāstra may next be considered. A Grāma was 1 or 2 krośas in length. There were other kinds of settlements besides the Grāma or the city. In the centres of 800 villages was a Sthāniya, of 400 villages, a Dronamukha, of 200 villages, a Kharvaṭika and amongst 10 villages was a Sangrahana. These were undoubtedly various kinds of fortified places. The distinction between these kinds of fortifications is described in all later treatises on architecture. The Sthānīya forts could be circular, oblong or square in plan. The arrangement of the streets are fully described in Chapter 22 of Book II. The whole site was divided by three streets running eastwards and three towards the north. Each extremity of the streets was to have a gate thus making up twelve gates in all. The Rathya, the Rājamārga, and the roads in a Droṇamukha, Sthānıya, a rāshtra or a pasture ground were to have a width of 4 Daṇḍas or 24 ft. Streets for other purposes varied in their width, the lowest being 2 cubits and the highest 32. To avoid the congestion in the streets due to slow movements of animals, different roads were allotted for different purposes. Thus there were footpath for men, some for animals like cattle, some other for the lower animals, some for elephants and some for the chariots. There were Devapatha and 'Charyā' inside the wall of a fortified city. Another kind of road was the Mahāpatha. Thus five kinds of high roads are mentioned in the Arthaśāstra—the Rājapatha, the Devapatha, the Mahāpatha, the Rathya, and the Charyā. These kinds of streets are explained in many works on architecture. (For details of Town-planning—See B. Dutt's work).

The Arthaśāstra, like other Vāstu-works, gives detailed account of the position of the habitations of the various classes of people in the city. The palace was near to the

centre facing to the north or the east. The centre was to be further enriched by the presence of several temples of the gods. Surrounding the palace were the houses of the Brahmins, the Kshatriyas, the Vaisyas and the Sudras occupying the north, the east, the south and the west part of the city respectively. The corners were set apart to the guilds; and the intermediate portions contained the market, the houses of the royal priests and officers, of the artisans and so on. This sort of scheme found in many of the texts should be thoroughly studied for a right interpretation of the excavated areas in India. The scheme found in the Arthaśāstra thus indicates the antiquity of the development of Indian Śilpaśāstra

The Arthaśāstra references to architecture are written in a style very similar to what we find in later works on Vāstu. Several passages in the former may be compared with those in the latter ones. Moreover there are reasons to believe that the present edition of Kautilya's Arthaśāstra is a South Indian recension of the book as will be evident from the comparision in the next Chapter Similarity of the Arthaśāstra Vāstuvidyā with the Mavamatam is remarkable The parts of the pillars are named according to Drāvida texts. The mention of 'Srī Madirā Griham' which cannot be explained in the Arthaśāstra, the Mayamatam and Silparatna is a further noticeable matter. The similarity of the other gods mentioned is also to be noticed[1]. Moreover the injunction in the Arthaśāstra that the height of the 'Prākarā' can be of both odd or even number of cubits is definitely rejected by the Samarāngana, Sūtradhāra[2] which it did, perhaps because that was the opinion held by the Drāviḍa architects. In the units of measurements too the Arthaśāstra refers to Ratharenu as in the Southern Śilpaśāstras, which is unknown to Northern ones.

[1] See Appendix to Chapter XI.
[2] Samarāngana Sūtradhāra, Ch. X. 28.

CHAPTER X

THE EARLIEST WRITERS OF THE VĀSTUŚĀSTRA

(Upto 6th Cent. A.D.)

THE foregoing chapters have revealed that at least from the time of the Gṛihyasūtras a science of architecture arose in India called the 'Vāstu-Vidyā' which was a part of the Śilpaśāstra. This was intimately connected with the rituals and astronomy or astrology. But it had also a technical side. It has already been shown that the technical matters of Vāstu Vidyā began to develop even from the Vedic period; and at the time of the Buddha, the Vāstu Vidyā had already developed in India. From that time till the 15th century innumerable writers on Vāstu arose in India Ram Raz first tried to find out the available works and he noted the names of no less than sixty-four sages or Indian writers on this subject Many more works have since his time been discovered from which we may now try to find out the names of the early writers on this subject.

The Matsyapurāna contains the names of 18 preceptors of Vāstu who were reputed in the age when these chapters of the Purana were composed. The age of compilation of this chapter is however not definitely known. Until otherwise proved, we may accept the current theory that the Matsyapurāna was completed just at the beginning of the Gupta period[1]. Thus we may start with that period and say that the writers on Vāstu Vidyā mentioned in the Matsyapuraṇa flourished before the fourth century A.D. The Matsyapurāna list[2] gives us the following names·—Bhṛigu, Atri, Vaśishṭha, Viśwakarmā, Maya, Nārada, Nagnajit, Viśālāksha, Purandara, Brahmmā, Kumāra, Nandīśa, Śaunaka, Garga, Vāsudeva, Aniruddha, Śukra and Brihaspati. Besides these 18 teachers, the same chapter says that these matters were also related by Manu.

[1] See Appendix to this Chapter.

[2] Matsyapurāṇa, Ch. 255, verses 4 ff.

Many scholars think that the list is a mere traditional one and that the persons mentioned had not really written any work on Vāstu. The first reason for thinking this is that many of the names mentioned herein appear to be those of some Indian gods or traditional sages. Secondly, we have not got the works of these writers. Hence scholars refer to them as floating traditions. But I shall try to show below that both these objections are untenable.

Regarding the first objection, it may be said that names of Hindu gods are often given to human beings in India. This is a very common practice. Similarity of names, therefore, need not lead us to identify these writers on Vāstu with gods of those names. On the other hand, quotations from their works are found amply in such literature of late periods which indicates the real existence of these writers of architectural treatises. Brahmmā (with its synonym Pitāmaha), Nandīśa or Śambhu, Vāsudeva and Kumāra need not necessarily refer to names of mythological gods. Śambhu is held as a great authority by the Viśvakarmā-prakāśa and the Mayamatam. A passage from a Śambhu's work has been quoted by a later work, the Vāsturatnāvalī Kumāra is regarded as an authority in the Śilparatnam (under the name of Sadānana) A book named Brahmma-Śilpa is quoted in the Śilpa-Śamgraha (chapter XVIII). The Brahmmayāmala is referred to in the Viśvakarmaprakāśa (Ch. II) Śakra (another name of Indra) is held as an authority by Varāhamihira and in the Sanatkumāra-Vāstuśāstra. The Śilparatnam refers to him as Purandara as in the Matsyapurāna. The Mānasāra and the Viśvakarmā-Śilpa refer to him as Indra. Bhaṭṭotpala actually quotes a verse from the work of a Śakra He was perhaps a writer of the southern school. Vāsudeva need not refer to Krishna but to a disciple of Viśvakarmā (see below). Viśālāksha, which may mean a name of Śiva, was also a person of that name He is often referred to in Kauṭilya's Arthaśāstra. As the Arthaśāstras often included chapters on Vāstu, we may identify this Viśālākasha of Kauṭilya's work with the writer on Vāstu Vidyā mentioned in the

Matsyapurāṇa. A 'Viśāla' is referred to in the Mānasāra. We cannot say if Viśāla may be identified with this author or a later writer. Writings of such other authorities may one day be discovered. There is, therefore, no ground for believing that these preceptors of Vāstuvidyā were merely fabulous gods to whom the origin of Vāstuvidyā in later periods was ascribed. The reason for doing this was that their original works were gradually lost and similarity of their names with those of gods led the later writers to think that they were gods. The name of Brahmmā was therefore mentioned later on as 'Pitāmaha' who was really a god.

Two such names, however, present a difficulty. They were Viśvakarmā and Maya. Viśvakarmā is known as the architect of the gods carrying out the orders of Indra. He is referred to as such in early literature, the Pali Jatakas, the Ramayana and the Mahabharata. Both these epics enumerate many of the deeds of Viśvakarmā. Thus it is clear that there was a traditional Viśvakarmā who was the architect of the gods. This, however, need not hinder us from believing that there was also really a man (or many men) called Viśvakarmā who wrote works on architecture. The word Viśvakarmā later on meant a good architect. We may believe therefore that in later periods many architects assumed the title of Viśvakarmā It was one of these later Viśvakarmās who is mentioned in the Matsya-Purāna list as a preceptor of the Vāstuvidyā. This is evident from the fact that several works have been secured which are supposed to have been written by a Viśvakarmā, and passages from such works are found quoted in later Vāstu works.

Who was Viśvakarmā, the writer of the Vāstuśāstra may also be known from the following discussions.

The Matsyapurāna (chap. 5) mentions that Viśvakarmā, the great architect was the son of Prabhāsa, one of the eight Vasus. This might have been the traditional Viśvakarmā, the architect of the gods. But the extant work of Viśvakarmā, the Viśvakarmaprakāśa which appears to be a compilation of Vāsudeva, says that Viśvakarmā was the

disciple of Bṛihadratha who was the disciple of Parāśara[1] who again was the disciple of Garga who had as his preceptor Śambhu Now, even if Śambhu be not regarded as a man (discussed above) there is no doubt that Garga, Parāśara and Vṛihadratha were real persons writing on Vāstuvidyā. About Garga and Parāśara we shall write more below. This is therefore clear that Viśvakarmā was the writer of a Vāstu work and he was a disciple in the third generation of scholars of Garga His views were put down in the Viśvakarmaprakāśa by his disciple Vāsudeva. 'Vāsudeva' mentioned in the Matsyapurāṇa list, therefore, need not be taken as the name of Krishna, but might refer to this writer of Vāstuvidyā of that name. So we find that there was a human being named Viśvakarmā who might have been a real author of works on Vāstuvidyā Now, as Viśvakarmā was the name of the architect of the gods, we may assume that those men who later on assumed the name 'Viśvakarmā' were people of Northern India, the home of the gods (see discussion about Maya below) and they wrote on architecture of Northern India, and represented the school favoured by the Aryans (the Viśvakarmā school which was later on known as the Nāgara school —see ch. XXVIII). The Viśvakarmaprakāśa is a work of the Northern school of architects, and so were those of Garga and Parāśara. This Viśvakarmā, the writer of Vāstuvidyā, has been mentioned in the Matsyapurāna list, and in the Brihat Samhitā; and quotations from his work have been found in the commentary to Brihat Samhitā by Bhaṭṭotpala[2]. There being thus no doubt about a writer of Vāstuvidyā named Viśvakarmā, we may also guess that he flourished after Garga but before the compilations of the Matsya Purāna, and the Brihat Samhitā Viśvakarmā's works appear to have been known to the author (Bharatamuni) of the Nāṭyaśâstra, believed to have been written in the Third

[1] Bṛihatsamhitā also refers to Parāśara as the preceptor of Brihadratha (ch. 61). Vis-Prakāsa ch 1 and end

[2] Many of the passages ascribed to Viśvakarmā in these quotations have been discovered by me in the Viśvakarmaprakāśa.

Century A.D. This will be further proved in the chapters on classifications of Indian temples.

But we find that several Vāstu works of the Deccan also take Viśvakarmā as an ancient preceptor. Viśvakarmā was thus the representative not only of the Northern school but also of the south. It might, however, be possible that there was another 'Viśvakarmā' in the south. A Southern architect might choose to assume that name and might have written works on Vāstuvidyā That it was so is evident from the fact that several extant works ascribed to Viśvakarmā (the Viśwakarmiya, Viśvakarmā śilpa and the New Viśvakarmā Vāstuśāstra, etc) have been discovered in South India, which deal, I think, with architecture and sculpture of the Drāvida land[1]. This Viśvakarmā was therefore a later one than Viśvakarmā of the North According to the Mānasāra, as noted by Ram Raz, there was a Viśvakarmā whose sons were Manu, Viśvakarmā, Tvastār and Maya. This informs us of the existence of a house of famous architects, and besides the senior Viśvakarmā, we find that all men of the family were regarded as great authorities on Vāstuvidyā, by all the later writers of Vāstuvidyā, in the Deccan.

Of them, Manu and Maya are mentioned also in the Matsyapurāna list. We may therefore take also this later Viśvakarmā of the south as having lived before the age of compilation of the Matsyapurāna. It is also possible, if the genealogy given above be regarded as merely a tradition, that when the early writers of Vāstuvidyā in the Deccan also followed the Northern authorities (see chapters on classifications of temples) they described their Viśvakarmā and his brothers, as sons of Viśvakarmā the senior, the North Indian writer, in order to show that Viśwakarmā of the North was also a preceptor of their own I also think that the writings

[1] Acharya—Indian Architecture, p 96 Dr Sukla (Vāstuśāstra, Vol. II) thinks this to be "not right" and the two versions form the complete treatise of Viśvakarmā. But he himself admits that a special feature of the Viśvakarmiya is that it is written in a Tāntric style The Northern works of Viśvakarmā are written in the Pauranic style and deal with Nāgara art, whereas the Southern works deal with Drāviḍa art, as is also evident from the newly published 'Viśkarmā-Vāstuśāstra'.

of some of the North Indian architects were in a later age re-written in the Deccan (see next chapter) and hence the Viśvakarma-prakāśa is different in character from the other works of Viśvakarmā which have been discovered in the south. A Viśwakarmā-Śāstra is amply quoted by Hemādri in the iconographical portion of his 'Chaturvarga Chintāmaṇi'.

Then about Maya Maya is known as a Dānava and to have learnt the science of architecture from Śukra, the preceptor of the Dānavas. The Ramayana and the Mahabharata also describe the deeds of Maya In the Ramayana, Maya's abode has been placed to the South of the Vindhyas. According to the Mahabharata he had erected a Sabhā north-east of the Kailāsa Mountain and another for the Pāndavas[1]. Thus the traditional Maya, the Dānava architect was connected with the Non-aryan countries of India. He was, therefore, the representative of the South Indian architects. As the traditional Visvakarmā, the god architect, was recognised the ultimate authority by the North Indian writers on Vāstu, this Maya was done so by the South Indian people. Regarding 'Maya' also we may say that later writers on Vāstu in South India might have assumed that name, as has been said by Ram Raz It was such a person named 'Maya' who wrote works on architecture of the southern school. He is mentioned in the Matsya Purāna; and the Brihatsamhitā clearly refers to him as an astronomer and an architect, and that in such a way as to indicate that he belonged to a different school (the Drāvida school). There is a book called the Mayamatam and quotations from one of his works have been discovered in Bhattotpala's commentary on the Bṛihat Saṃhitā, the Īśānaśiva-gurudeva-Paddhati and the Chaturvargachintāmani of Hemādri The Śilparatnam also ascribes several opinions to Maya. Though I have not discovered Bhaṭṭotpala's quotation in the extant Mayamatam, the references in the Ī-Ś-G-Paddhati and Śilparatnam have been found out by me in the Mayamatam. Moreover I shall show below (ch.

[1] How a Drāvida writer could be connected with Northern-most parts of India will be made clear by the discussion about Nagnajit below.

on classification) that the system followed by the Mayamaṭam is a very early one. I therefore agree with the learned editor of the Mayamatam who says that the Mayamaṭam is really one of the earliest works on South Indian architecture, earlier than the 11th century A.D. A fragmentary Mayaśāstram, mentioned by Dr. P. Bose, refers to the Mānasaram, Gārgeya, Dīpta, Mārıcha, and Ātreya Tantras. This Mānasara may be an earlier Mānasara mentioned in the published Mānasara as an authority. Thus Maya also may be regarded as not only a traditional architect but also as a real person who wrote works on Vāstuvidyā of the southern school.

From these discussions about Viśwakarmā and Maya we may also conclude that traditions and other facts clearly indicate the existence of two different schools of architecture in India, one most prevalent among the Drāviḍas and the other among the Aryans of the North, one recognising Maya and the other Viśvakarmā as the ultimate authority. There were also persons of those names who were very early writers on Vāstuvidyā flourishing before the Matsyapurāṇa and the Nātyaśāstra and definitely before the 6th century A.D.

Now as to the other preceptors of Vāstuvidyā mentioned in the Matsya Purāna. The Śilparatnam refers to Bhṛigu and verses from his work are quoted in the Vāsturatnāvalī (a late compilation). According to the author of the Viśvakarmāśilpa, Viśvakarmā learnt the science from Bhṛigu. This author Bhrıgu, however, was perhaps a writer on the Drāviḍa architecture, for he is regarded as an authority by writers of the southern school. He is not mentioned any where in the Bṛihat Saṃhitā[1] though done so in the Matsya Purāṇa. The Śilpasaṃgraha, a book of South India ascribes its 6th chapter to Bhṛigu. The astrological book Bhrigusamhitā might have contained architectural matters. The published Atri Saṃhitā (I. 40; II. 45)

[1] Though not mentioned, it, however, cannot really prove anything about Bhṛigu's date. We cannot say if his work was later than the Bṛihatsaṃhitā which does not refer to all these writers or, as said elsewhere, Varāhamihira's "manvādi" might have included Bhṛigu More over if he was a writer of the Southern School, Bṛihat Saṃhitā had no necessity of referring to his name.

and the Vaikhānasa Āgama of Marīci also acknowledge the authority of Bhṛigu. A work of Bhṛigu has been partly published in Telugu characters.

Atri, another sage, was the disciple of Garga as mentioned in the Brihat Samhitā (ch. 46) and the Matsyapurāṇa (ch 229). Recently a book named Samūrtārchanādhikarana or Atri Samhitā has been discovered and edited, which contains several chapters on architecture and sculpture. The book belongs to the Vaikhānasa school of the Pañcharātras. But the book describes the architecture of the Deccan, as the names of temples in it indicate (See Table 1C). It contains, however, old traditions regarding architecture, and agrees with the early Āgamas, but is not referred to in South Indian works Atri of the Bṛihat Samhitā was a disciple of Garga and might be of the northern school. The Atri Samhitā might therefore be a later Deccanese recension of Atri's work. But the Agni Purāna refers to the Ātreya as a Pañcharātra work This might have been same as the Ātreyatilaka on which was based a Buddhist iconographic work, the Pratimāmānalaksanam. The Ātreyatilaka appears to have been the North Indian work of Atri as the Pratimālaksanam indicates

Vasishtha has been found quoted in many places in the Vāsturatnāvalī One such quotation indicates that he was a later preceptor than Garga[1] and followed Garga. He is also quoted in the Jalāśayotsarga of Raghunandana. He was therefore a later Vasishtha than one mentioned in the Rig-veda as a brother of Māna[2]

Nārada of the Matsyapurāna might be the sage of that name referred to by Varāhamihira (Brihat Saṃhitā ch. 24) as a disciple of Bṛihashpati. He is also quoted by Raghu-

But I have a strong suspicion that the Hayaśirsapañcharātram is perhaps a version of Bhrigu The last few verses are recited by Bhrigu and refer to Mārkandeva In that case there was a Bhrigu even dealing with architecture of the Northern School.

[1] Vāsturatnāvalī, p. 13.

[2] Vasishṭha's work was known also to Bhaṭṭotpala who explains Varāhamihira's reference to "Manvādi" as "Manu-Vasishtha-Maya-Nagnajitbhih". Vasishṭha was also perhaps regarded as an authority of Drāvida Vāstuvidyā, as he is here mentioned along with other writers of the same school (See 'Manu' below).

nandana and in the Vāsturatnāvalī. The Mānasara also takes him to be an authority. The Chapter VIII of the Śilpa Saṃgraha (a late South Indian Śilpa work) is wholly ascribed to him The next paragraph and his association with South Indian texts, as mentioned above, may indicate that he was an authority of the Drāviḍa school of Vāstuvidyā. He might be the same Nārada who is known as the author of the Nārada Pañcharātram.

A ms. of the Nārada Śilpaśāstra containing 83 chapters on Vāstuvidyā including image-making and painting was noticed by V. Raghavan (J.I.S.O.A , 1935, Vol. VIII, Pt. 1). This ms. contains the names of Uśanas (Śukra), Kāśyapa and Vrihaspati as authorities cited by Nārada, thus supporting what Varāhamihira says about Nārada's preceptor. The chapter on 'Chitraśālā' shows that it was perhaps a South Indian work But it might be a South Indian recension of the original North Indian work of Nārada Another ms of 'Vāstuvidhāna of Nārada' is in the Adyar Library, Madras.

Nagnajit of the Matsyapurāna has been referred to by Varāhamihira and found quoted in the Commentary of Bhaṭṭotpala (Ch. 58 of Bṛhat Samhitā, 4 & 15) A Nagnajit, the king of Gandhara (and Kashmir) is mentioned in the Satapatha Brāhmana (VIII. 1. 4. 10) in such a way as to indicate that he was an expert in building construction, and his opinion was rejected by that Brāhmana because he was a 'Rājanya'. He was perhaps the same Nagnajit who according to the Aitareya Brāhmaṇa (VII. 34. 9) was a disciple of Nārada, and according to the Mahabharata a disciple of Prahlāda. We have a Tibetan version of Chitralakshana of a Prahlāda and a Nagnajit. Nagnajit is described in the Brāhmaṇas and the Mahabharata as an Asura king of Gāndhāra. The discovery of the 'Chitralakshana' indicates that he was an architect associated with Prahlāda.

A king named Nagnajit of Gāndhāra is known in Jain literature as having adopted Jainism. Another Nagnajit of Gāndhāra is known from the Jātaka (No. 408)

to have become a recluse. Though there is nothing more to identify all these Nagnajits with Nagnajit of Varāhamihira and the 'Chitralaksanam', Late J. Ghosh thought that Nagnajit was an asura king and the architect of an ancient Gāndhāra school of art[1]. Moreover, the quotation from Nagnajit's work in Bhaṭṭotpala's commentary and Varāhamihira's reference to Nagnajit show that Nagnajit was giving an opinion about the Dravidian system of measurement. Though from this we cannot conclude that Nagnajit was a writer of Dravidian architecture and that he was the same king Nagnajit of Gāndhāra as Ghosh thought, a strong suspicion still exists about the heterodoxy of Nagnajit, the writer of Vāstuvidyā. It might be that Nagnajit wrote about all schools of Vāstuvidyā, both the Northern and the Drāvida (cf. The Hayaśīrsa Pañcharātram, mainly a Northern work, referring to the Drāviḍa temples; and the Kāmikāgama, mainly a South Indian work, referring to the Nāgara temples), but Bhattotpala's reference to his name along with Maya (see footnote, p 94) may show that Nagnajit was not mainly a writer of the North Indian Vāstuvidyā which was being discussed by Varāhamihira and Bhattotpala

Śaunaka's authority has been accepted by Raghunandana of Bengal and a Tantra work is ascribed to him in the Agni Purāna. He is also mentioned by Varāhamihira as an authority, in his Rājamārtaṇda Samgraha (Vide Des Cat. of MSS. in Mithila Vol., III). The Rājadharma Kaustubha quotes (Ch 10 and 12) several verses on architectural matters from a Śaunaka's work.

Garga was undoubtedly a very old writer on Vāstuvidyā and perhaps the founder of the Nāgara school. He was earlier than Viśvakarmā, Vṛihadratha, Parāśara, Vasistha and Atri as already noted. His work was available to Varāhamihira who summarised it in writing the chapters on Vāstu.

[1] Indian Culture, Vol. VI, p 347-51.

If we assume the existence of an Asura or Dānava school of art in Gandhara known also as the Drāviḍa schol, it will prove that the terms Asura, Dānava and Drāviḍa are identical This will throw more light on the Indus valley culture than what Mr. Ghosh thought (See Chapters XXVII & XXVIII).

Bhaṭṭotpala also quoted largely from Garga. In fact an astrological book called the Gārgī Samhitā has been discovered, which might have been written not later than the first century A.D. The author of this Saṃhitā might have been the same as Garga the great writer on Vāstu Vidyā, as there was a great relation between Vāstu Vidyā and Jyotisha Śāstra in India. The Viṣnu Purāna (II. V. 26) reference to Garga's learning astronomy etc. from Śeṣa (who was a Nāga) may place him in about 110 B.C. in which period Jayaswal places a Nāga king of that name. A Bṛihadgarga is sometimes referred to in the Brihat Saṃhitā and other works. It might be that there were two Gargas, the senior and the junior. Which of these was the author of Vāstu Vidyā cannot be definitely said. But the Vishnu Purāna reference may place Garga in the end of 2nd century B C. (See Chap XXVII).

Aniruddha mentioned in the Matsyapurāṇa has not been found mentioned anywhere else. Vṛihaspati was a teacher of Nārada (as noted above) and has been quoted by Bhaṭṭotpala. He was also regarded as an authority by the Mānasāra. So he also was a South Indian writer and the preceptor of Nārada, another Drāvida writer. Śukra is another puzzling authority mentioned in the Matsyapurāna The name was borne by the traditional preceptor of the Dānavas. He is called also Bhārgava indicating his relation with Bhṛigu who, as has already been mentioned, was perhaps an authority on Vāstuvidyā of the south. Both the Śilparatnam and Viśvakarmā Śilpa (the southern work) refer to Śukra (or Bhārgava) as an ancient authority. According to the Ramayana, Maya received his knowledge from Śukra. Thus we may guess that the writer of Vāstuvidyā named Śukra was a writer of the Drāviḍa School. No work of Śukra, devoted entirely to architecture, has yet been discovered, but a compilation of his teachings under the name of Śukra Nīti contains some passages dealing with architecture and iconography. But the temples described therein are more similar in name to those of Southern India than those of the North (See Table IC). In the

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Bṛitat Saṃhitā (Ch. 86) he has been regarded as an authority by Varāhamihira.

The actual quotations from their works (See Appendix B) may warrant us in concluding that these 18 teachers of Vāstu Vidyā mentioned in the Matsyapurāṇa were not traditional authorities, but were real writers of works on Indian Vāstu Vidyā of both northern and southern schools, whose books though lost to us have been referred to by Varāhamihira (in the 6th century) and quoted by Bhaṭṭotpala and even later writers of the 15th century A.D. It was their works[1] which were consulted by the compiler of the Matsyapurāna when he wrote the chapters on Vāstu Vidyā. They were also referred to by Varāhamihira as 'Gargādi' in his chapters on Vāstu Vidyā. It is therefore that we find the similarity of the chapters on Vāstu Vidyā incorporated in the Matsyapurāna with those in the Brihat-Saṃhitā. This was not due to floating traditions which were the common sources of those works, as Dr. Acharya thinks. That these writers lived before the 6th century is quite evident and they might have flourished even long before, as is apparent from the inclusion of their names in the Matsya Purāna. The date of Garga is a landmark in Indian architecture (See Chap. XXVIII)

There were besides these 18, other early writers on Vāstu Vidyā who are not mentioned in the Matsyapurāṇa but referred to in the Brihat Saṃhitā One of them was Manu. Varāhamihira says[2] that Manu and others had written on Vāstu Vidyā in great detail and therefore Varāhamihira could not write everything they had said This Manu, though not mentioned in the Matsyapurāṇa list, is referred to in the same chapter as an authority on Vāstu Śāstra (See f. n. p., 87 ante). There is nothing, however, to connect him with Manu the celebrated law giver The Mānasara and the Viśwakarmā Śilpa also refer to Manu as an early authority. He also therefore should be classed with the other

[1] Though Mat. P. knew all the writings of both the schools, it included only the northern style when summarising these things.

[2] Bṛihat Saṃhitā, 56.31.

eighteen teachers of Vāstu Vidyā[1] and perhaps was an authority of the Southern school as the genealogy, given by Ram Raz, of Viśvakarmā and Maya indicates.

Another famous writer was Parāśara. He is not mentioned in the Matsyapurāna. But he is mentioned in the Bṛihat Saṃhitā[2]. Moreover we know, as related before, that he was an earlier preceptor than Viśvakarmā and was a disciple of Garga. Kauṭilya refers to a school of Parāśara (Arthaśāstra, p. 398). He has been quoted by Bhaṭṭotpala in many places. Moreover, the southern works like the Mānasara, the Śilparatnam refer to him as a great authority, and the Īśāna-S—G—Paddhati quotes frequently from his work. As Parāśara is known to have been a disciple of Garga, he was perhaps a writer of the Northern school. But the fact of his being so highly regarded and quoted by Southern works raises the suspicion that Parāśara's work like that of Viśwakarmā and Atri was also rewritten in the South to suit the canons of South Indian architecture. Or there were two Parāśaras[3].

The same might also be said of another writer mentioned in many places in the Brihat Samhitā and found frequently quoted by Bhaṭṭotpala. He was Kāśyapa. He is also regarded as a great authority in the Mānasara and the Śilparatnam. A chapter of the Śilpa Samgraha (Ch. 3) is ascribed to him Besides, we have got Mss. of the work of a Kāśyapa—the Kaśyapiya (in possession, of Mr. O. C. Gangooly) and the Kāśyapaśilpa, the Vaikhānasiya Kāsyapa Jñāna Kāṇda and the Aṃśubhedha of Kāśyapa (published in Anandasrama Sanskrit Series). The passages quoted by Bhaṭṭotpala indicate that he was a writer on North Indian

[1] References to Manu also indicate that he was a writer of the Drāviḍa School, or later on accepted as an authority by the Southern school, as Viśvakarmā (See f note on Vasishtha above) The mention of Manu with Vasishṭha, Maya & Nagnajit perhaps indicates that all these were Drāviḍa writers.

[2] Bṛi. Sam, Ch. 61. Parāśara's disciple was Vṛihadratha "Parāśara Prāha Vṛihadrathāya Golakshaṇam Yat." This is supported by the Viśvakarmaprakāśa

[3] The Īśāna—S—G—Paddhati contains innumerable passages quoted from Parāśara's work, which has not yet been traced in original form.

Vāstuvidyā. But the available works appear to be quite different from the original work of Kāśyapa and are undoubtedly works on South Indian architecture. The Atri Saṃhitā (ch. 40) a South Indian work also acknowledges authority of Kāśyapa It is therefore that I think that the available works of Kāśyapa were later South Indian recensions of the famous original work of Kāśyapa. From a rule in the Śilparatnam that temples according to Kāśyapa may be of 16 storeys, it may be inferred that the work utilised by the author of the Śilparatnam was this later recension of Kāśyapa's work which actually contains description of sixteen-storeyed temples[1]. That the Kāśyapa Śilpam was a later South Indian work is also apparent from the fact that according to earlier Southern texts, the number of storeys did not exceed twelve. Therefore whereas the South Indian works of Kāśyapa were of a late period, there was undoubtedly an earlier work of Kāśyapa which was the authority of Bhaṭṭotpala. According to a quotation of Kāśyapa found in the commentary of Bhaṭṭotpala, Kāśyapa was a later authority than Viśwakarmā[2] As he is not mentioned also in the Matsyapurāna, are we to guess that Kāśyapa flourished in the period after the Matsyapurāna (4th century A.D.) and before the Bṛhat Saṃhitā (6th cent. A.D.) (if we take the Matsyapurāna list to be an exhaustive one)?

The Brihat Saṃhitā refers to a sage named Bharadwāja who is not mentioned in the Matsyapurāṇa but is found quoted by Bhattotpala. He might or might not have, therefore, been a contemporary of Kāśyapa (i.e after Matsya P. but before Bṛi. Sam). Recently a Ms. of a book called 'Yantrasarvasva', of Bharadvāja has been discovered.

Another ancient writer, not mentioned either in the Matsyapurāṇa, Brihat Saṃhitā or Bhaṭṭotpala's commentary

[1] Śilparatnam, Chap 37. "Ā Sodaśatalam Prāha Kāśyapo munisattamah". Acharya—Indian Architecture, p. 93 (no. 41). Also see Chap. XVI

[2] Bhaṭṭotpala's commentary on Bṛi. Sam, Ch. 56. "Prāsādo Merusamjñah Syānnirddiṣṭo Viśvakarmanā". Kāśyapa is quoting here the opinion of Viśvakarmā and so must be later than Viśvakarmā.

was Agastya. He is regarded as a great authority by all the South Indian works[1]. A book called the Sakalādhikāra supposed to have been written by Agastya has been discovered. Though the Ms. is fragmentary, I have no doubt that it is a South Indian work. So Agastya might have been really a writer on South Indian architecture. If 'Māna' was another name of Agastya (ch. II), we may take the Mānasāra to be a later compilation of Agastya's work. This matter will be later on discussed in detail (Vide Ch. XVIII). The Mānasāra not only refers to Agastya as an authority but also contains iconography of the image of Agastya. Being a later work, it thus paid special respects to the sage Agastya and also refers to other summarised versions of Agastya's works e.g. Mānavid, Mānakalpa, Mānabodha and even another Mānasāra. The compiler of this version of Agastya's work based his book on earlier summaries.

Another early author was Mārkaṇḍeya who recited the Citralakshanam in the Viṣnudharmmottaram. He was also a writer on Vāstuśāstra as is evident from the Ms. referred to by Dr. P. Bose (Principles of Indian Śilpaśāstra, p. 12 and Appendix, p 16). The Hayaśīrsapañcharātra Ms. (V R Society, Rajshahi) also refers to this sage in the last verses. His authority as a Vāstuśāstra writer therefore is obvious.

Thus there is no doubt that before the sixth century A.D. there were about 25 writers on Vāstuvidyā.

Some of them viz. 19 were existing before the 4th century A.D. if the Matsyapurāna chapter be regarded as having been completed in that century. The date of the famous writer viz. Garga was between the second century B.C. and First century A.D. as already discussed. His preceptor was Śeṣanāga. This Garga was followed by his disciples Parāśara, Vṛihadratha, Visvakarmā and Vāsudeva. Vasishṭha, Kāśyapa and Atri are also known to have lived after Garga or were his disciples. So we find that after the 2nd century

[1] Śilparatnam, Viśvakarmā Śilpa, Śilpa Saṃgraha etc.

B.C. there arose at least seven writers on Vāstu Vidyā, if not more. The earliest limit of the dates of the other authors is, however, difficult to find out.

Besides the traditional Viśvakarmā and Maya, who must have been the founders of Vāstu Vidyā in the earliest period, some eight other authors may also be regarded as living earlier than second century B.C., if we believe in the traditions A Nagnajit is known in the Brāhmanas. Agastya is known as Māna in the Rigveda. Nārada is known as the preceptor of Nagnajit. Another author Prahlāda the preceptor of Nagnajit might have flourished before the Brāhmaṇa period. Bhrigu and Śukra also must have been very early writers. So was Vrihaspati who was a preceptor of Nārada. These eight authors might, therefore, have written their works before the historic period (6th century B.C). Viśālāksha might have flourished before the Arthaśāstra (i e. at least before 1st century A D) Some of these 25 teachers were of the Viśvakarmā school and others were of the school of Maya i.e. the Drāvida school The Nāgara school, a branch of the Viśvakarmā school arose about the 2nd century B.C and some of these writers might have represented the Nāga school too.

APPENDIX A

THE VIŚVAKARMAPRAKĀŚA, MATSYAPURĀṆA AND THE BṚIHAT SAṂHITĀ

In the foregoing pages I have assumed that the Viśvakarmaprakāśa is the earliest of the known North Indian works on Vāstu Vidyā. But the matter deserves elaborate consideration. This can be done by comparing this work with the two other works with which it bears a very close resemblance, the Matsyapurāna and the Bṛihat Saṃhitā, the dates of which are also more or less definitely known to us.

First, let us consider the date of the chapters on Vāstu Vidyā in the Matsyapurāṇa. This Purāna is generally believed to have been completed in the beginning of the Gupta period (4th century A.D). It will also be shown that it contains the names of 20 kinds of temples, which is the earliest known classification of temples in India. The references to the prohibition of erection of stone houses (other than temples) in the Purāṇa (See Ch. XXVIII) also indicate a very early stage of Indian architecture represented by it. These considerations may support the date generally ascribed to the Matsyapurāna.

But there are several factors which may go against this theory. In describing the names of the temples, the Matsyapurāṇa refers to certain names which are not found in the list in the Brihat Saṃhitā. Thus in the Calcutta edition is mentioned a temple named 'Mrigarāja', which is not found in the Bṛihat Saṃhitā. Again, though the list in the Purāṇa does not mention the temple called 'Śrī-Vṛiksha', in the description of temples following, this temple has been described. Therefore the Matsyapurāṇa chapter contains some self-contradictions.

Besides this, we find that the temples 'Śrī-Vṛiksha' and 'Mṛigarāja' are two temples found in later texts. Thus the former one is mentioned in the Samarāṅgaṇa-Sūtradhāra and the Agni Purāṇa lists of Nāgara temples. Thus the

Matsyapurāṇa shows an acquaintance with a later stage of Indian architecture. This might be overlooked by saying that it was due to the oversight of the scribe of the manuscript, who was acquainted with both the earlier and later classifications of temples and confused the two in copying. But what is significant is that these apparent mistakes are found in the same form in also the later quotations from the Matsyapurāna. The Samarāngaṇa-Sūtradhāra chapter on Nāgara temples not only contains these later names (not unnaturally, as it is really a later work), but also the mistake in not naming the Śrī-Vṛiksha temple but describing it in a following verse. The Sama-S. therefore appears to have been copying a confused version of the Matsyapurāṇa.

Similarly the 'Haribhakti Vilāsa' a very late compilation of Bengal, in quoting the Matsyapurāna verses on names of temples refers to the 'Mṛigarāja' temples This confusion therefore is not due to the mistake of the scribe of the Ms., but must have originated in a very early period, in fact before the 11th century A.D. (the date of the Samarāngana-S.). In fact the Samarāngana further converts the name 'Śrī-Vṛiksha' into 'Vāvriksha'—showing how this kind of classification of temple (Śrī-Vriksha) mentioned in the Agni Purāṇa etc. had arisen long before the 11th century (in which case only such confusion could have been possible). All these considerations show that the Matsyapurāna text could not have been a copy of the Brihat Samhitā, for, if it was so, there would not have been these mistakes in the Purāna. Moreover, the 'Meru' temple is twelve-storeyed (and 32 cubits wide) according to the Bṛihat Saṃhitā, but sixteen-storeyed and 50 cubits wide according to the Matsyapurāna as well as the Viśvakarmaprakāśa. This may indicate that the Matsyapurāna refers to a more developed stage of architecture than the Bṛihat Saṃhitā. The Samar. S. reconciles both the sizes by saying that the Meru temple can be wide by from 32 cubits to 50 cubits. This later dimension of the Meru temple as described by the Matsyapurāṇa and the Viśvak. Prakāśa therefore arose before the 10th century and might not represent a later

stage than that of the Bṛihat Saṃhitā, but might arise from these texts being taken from a school different from that followed by the Bṛihat Saṃhitā; or it might be that the Matsyapurāṇa was written not long before the sources (e.g. Hayaśirṣa Pañcharātra) of the Agni Purāna, when both the classifications were known. A cause of these later matters being incorporated in the Mat. Purana and Viśvak. Prakāśa may be that these were later interpolations

Then we may discuss the relation of the Viśvak. Prakāśa with the Matsyapurāna. The similarity of many of the verses in these works may lead anybody to think that the one is indebted to the other. In fact the Matsyapurāna really refers to the fact that these chapters were taken from earlier works. It names both Viśvakarmā and Vāsudeva as two earlier authors. The Viśvak. Prakāśa is a later compilation of Viśvakarmā's work done by Vāsudeva. We therefore may presume that the Matsyapurāṇa really copied from the work of Viśvakarmā, and presumably from this compilation by Vāsudeva. The Viśvak. Prakāśa also contains many confusions and they must have arisen in later periods. Thus we may conclude that the Viśvak. Prakāśa is really an earlier work than the Matsyapurāṇa and the Bṛihat Samhitā. Bhaṭṭotpala quotes a work of Viśvakarmā and many such passages have been found by me in the V. Prakāsa. But against this stands the opinion of Dr. Kern (J.R.A.S., Vol. VI) who finds out two verses in the Viśvakarma Prakāśa in the Āryā metre (For the verse, see Appendix, chap XIX) which are also found in the Bṛihat Saṃhitā. As these are the only verses in Āryāmetre in the V. Prakāśa, he infers the indebtedness of V. Prakāśa to the Bṛihat Saṃhitā. But as it has been shown that the Bṛihat Saṃhitā itself was based on early writings (as Varāhamihira himself says), it may be that both the Bṛihat Saṃhitā, as well as the V. Prakāśa had taken this verse from a common source. The subjects dealt with in the Viśvakarmaprakāśa in fact are more allied to those in the Matsyapurāṇa than those in the Bṛihat Saṃhitā from which the former differs in innumerable details. The regulations

regarding dimensions of doors (See Ch. XXIV) also show that the two texts differ in many points. Hence the Viśvakarmā P. could not have copied from the Bṛihat Saṃhitā. In fact it is strange to note that a later compilation called the Viśvakarmāvidyāprakāśa is a verbatim reproduction of the Bṛihat Saṃhitā chap. 53 with the addition of only a few new verses.

Though the Viśvakarmāvidyāprakāsa is certainly a very modern work, it is difficult to say if the author was here reproducing the Bṛihat Samhitā chapter or was really quoting another work of Viśvakarmā. The two verses in the Viśvakarmaprakāśa, mentioned above are also found in this book. It is quite possible, therefore, that Varāhamihira really had taken this chapter from a work of Viśvakarmā, of which the V. Prakāśa is also a later compilation (of course earlier than the other work mentioned) Moreover, the V. Prakāśa being an avowedly architectural work and having contained many more matters than what is included in the Brihat Samhitā, it is not clear why the author of that work should take only those two verses in the Āryāmetre from the Bṛihat Samhitā, while many other original works on architecture were available to this author, as they were to Varāhamihira.

Moreover, it has been shown below (Ch. XIX, Appendix D) that those two verses are very difficult ones and even Kern took them to be "too vague" ones. It is quite probable that even Varāhamihira did not try to improve these verses, as he had done in many other cases In fact there is nothing to show that the Viśvakarmaprakāśa was a later work than Varāhamihira's Bṛihat Śamhitā. On the other hand, the Viśvakarmavidyāprakāśa rather points to the indebtedness of Varāhamihira to the works of Viśvakarmā. The later compiler, the author of Viśva. K. Vidyā Prakāśa could have summarised the Viśvakarmaprakāśa—it cannot be understood, why in writing the Viśvakarmavidyā, he took the whole thing from the Bṛihat Śaṃhitā. It is therefore quite likely that Varāhamihira (as he himself says he was indebted to the works of older preceptors) had

taken the verses from an earlier work—a work of Viśvakarmā.

The similarity of these three works—the Matsyapurāṇa, the Viśva. Prakāśa and the Bṛihat Samhitā therefore may lead us to conclude that Viśvakarmā's works were earlier than the Matsyapurāṇa which was again earlier than the Bṛihat Śaṃhitā and that both the Matsyapurāṇa and the Bṛihat Śaṃhitā had been based on earlier works—the works of Viśvakarmā, Garga and others who are mentioned in those works as their authorities. These earlier writings were not merely floating traditions, as Acharya believes, but were real works on Vāstu Vidyā, the existence of which in a very early period has been shown in the previous chapters.

Appendix B

Authors mentioned in the Matsya Purāṇa	Passages from their works quoted in	Cited as authorities in
*1 Bhrigu	(a) Vāsturatnāvalī, pp 7, 52, 64 (b) Śilpasaṃgraha, Ch VI (c) Hayaśirsapañcharātra, (V R S. MS)	(a) Śilparatna (b) Viśvakarmā-Śilpa (c) Atri Saṃhitā (d) Vāsturatnāvalī, p. 52
*2. Atri		Bṛihat Saṃhitā
3. Vasishṭha	(a) Raghunandana's Vāstuyāgatattva, p. 25 (b) Vāsturatnāvalī, pp. 7, 10, 13, 40, 44, 59, 71, 72, 81, 93, 98	..
*4 Viśvakarmā	Bhaṭṭotpala (Brihatsam., chap. 52. verses 40-41, 73, 75-76, 122 (Found in Viśvakarmaprakāśa)	..
*5. Maya	(a) Bhaṭṭotpala (Br. Sam., ch 52, 40-41) (b) Īśānaśiva-Gurudeva-Paddhati (c) Śilparatnam	Bṛihat Saṃhitā

Authors mentioned in the Matsya-Purāṇa	Passages from their works quoted in	Cited as authorities in
*6. Nārada	(a) Matha Pratishthā of Raghunandana refers to Nārada Pañcharātra (b) Śilpa Saṃgraha, ch 8 (c) Vāsturatnāvalī, pp 15, 41, 44, 71, 90, 92, 98	Nārada Silpa
*7 Nagnajit	Bhattotpala, ch 58 verses 4 and 15 & Vishnudharmottaram	
8 Viśālāksha		(a) Arthaśāstra (b) Mānasāra (?)
9 Purandara or Śakra	Bhattotpala 52, verses 40-41	(a) Brihat Saṃhitā (*b*) Mānasāra (c) Śilparatna etc
10 Brahmmā	(a) Brahmmaśilpa quoted in Śilpa-Samgraha (ch 18) (b) Brahmmayāmala quoted in Śilpasaṃgraha, ch 19 and Viśvakarmaprakāśa (Ch II) (c) Pitāmaha quoted in Īśana-Ś-G-D-Paddhati III 30 20. Rājadharmakaustubha (20 Passages)	Many books Rājadharmakaustubha (20 passages)
11. Kumāra	..	Śilparatna
12. Nandiśa (Śambhu)	Vāsturatnāvalī, p 51, 86	.
13. Śaunaka	Raghunandan's Jalā-śayotsarga, p 11 Rājadharmakaustubha ch 10 & 12	(a) Agni Purāna, (*b*) Rājamārtanda Saṃgraha of Varāhamihira
14 Garga	Bhattotpala, ch 52, verses 16, 23, 31, 32, 33, 34, 35, 73, 74, 83, 93, 94-5, 107, 110	(a) Brihat Saṃhitā (b) Viśvakarmaprakāśa (c) Sanat Kumāra
*15. Vāsudeva	.	Viśvakarma Prakāśa
16 Aniruddha		.
*17. Śukra	.	(a) Śilparatna (b) Viśvakarmāśilpa (c) Brihat Saṃhitā

Authors mentioned in the Matsya-Purāṇa	Passages from their works quoted in	Cited as authorities in
18. Vrihaspati	Bhaṭṭotpala, ch 52. 2-3 and 87-88	(a) Bṛihat Saṃhitā (b) Mānasāra
19. Manu	..	(a) Bṛihat Saṃhitā (b) Mānasāra (c) Viśvakarmāśilpa

Authors *not* mentioned in Matsyapurāna but in Bṛihat Saṃhitā	Quotations from them found in:—	Cited as authorities in:—
20 Parāśara	Bhaṭṭotpala, ch. 52, 49-50 and 91 Īśānaśiva-guru—Paddhati	(a) Viśvakarma Prakāsa (b) Mānasāra (c) Śilparatna
*21 Kāśyapa	Bhaṭṭotpala, ch. 52.4 and 11, ch. 55	(a) Mānasāra (b) Śilparatna (c) Atri Saṃhitā
*22. Bharadvāja	Bhaṭṭotpala, ch. 52 75-76	..
Other early authors		
*23. Prahlāda	..	..
*24. Agastya	..	(a) Śilparatna (b) Mānasāra
*25 Mārkaṇḍeya		(a) Hayaśīrṣa Pañcharātra (MS) (b) Viṣnudharmmottara.

*Books are found ascribed to such marked authors

CHAPTER XI

EARLIEST NATURE OF VASTUŚĀSTRA UPTO THE FIRST CENTURY A.D.

THE Architectural canons of ancient India were best known to the mason architects and were of use to them only. The lay people naturally were less acquainted with them. But a time came when many scholars wrote on Architecture and were famous in society as the preceptors of the Vāstu-vidyā. Gradually, however, the educated community began to neglect the study of this science and the Mss. were being carelessly preserved or were totally neglected. This accounts not only for the very fragmentary character in which most of the earliest works have been handed down to posterity but also for the many mistakes of the scribe of later ages, evidently due to their unacquaintance with the real objects indicated by the technical terms. An attempt may be possible to find out the scope and the different stages of the development of the Vāstuvidyā

Before Ram Raz, Indian Vāstu-vidyā, to the scholars, meant only several canons dealing with the religious rites to be performed on the occasion of building a house and a few astrological data for calculating the best time for house-building. These portions of the Vāstu-vidyā were incorporated in the Purāṇas, Tantras, Āgamas and other works on ceremonial rites and astronomy or astrology. These have therefore been better preserved than the main topics of the Vāstu-vidyā dealing with the technical aspects of the subjects. But there can be no doubt that the Vāstu-vidyā was formerly recognised as one of the technical subjects along with the Āyurveda (Science of Medicine), Dhanur-veda (Science of War), Astronomy and the like Although this science finds no specific mention either in the list of fourteen or the eighteen Vidyās, yet, as precepts about the Vāstu are found incorporated in Jyotish and Purāṇa both of which are recognised as branches of learning or

Vidyā, Vāstu may be recognised as one of the Vidyās. The author of the Śukranītisāra clearly recognises Śilpaśāstra as one of the thirtytwo Vidyās enumerated in it (Chapter 4, 3. 29)[1]. Śilpasāstra as a whole was also taught in the Nalanda University (vide-account of Yuan Chwang).

The Vāstu-vidyā was a branch of the more comprehensive Śilpaśāstra; but gradually the two became identical. Vāstuvidyā means the science dealing with Vāstu. The word "Vāstu" is of unknown antiquity and occurs in the Rigveda in the sense of the building site or the building itself. Vāstuvidyā therefore primarily meant the science of Architecture. Later, however, many other subjects were incorporated in it. Thus Vāstu in the sense of a place where men dwell, according to the author of the Mayamatam, included not only building-site and Prāsādas or temples and palaces but also conveyances and couches. The Śilpaśāstra which included the Vāstuvidyā is defined in the Śukranīti as a science dealing with public works such as temples, images of gods, gardens, houses, and tanks. It was exactly these subjects that are found discussed in the later Vāstu-śāstras. Śilpaśāstra and Vāstuvidyā were thus identified with each other.

We shall now try to present an idea of the nature of the Vāstuvidyā as it existed in the early times and how it developed in later periods.

When the Vāstuvidyā first originated cannot be definitely ascertained. Its origin should be considered apart from that of Indian architecture. The opinion held by scholars that the Vāstuvidyā originated in the period of decadence of Indian architecture cannot be supported. Some of the extant treatises might have been late works, but the Vāstuvidyā in some form must have existed in the earliest known periods of Indian history. We have already discussed in previous chapters (I to IX) the nature of Indian architecture as it existed from the Rigvedic period to the time of the Arthaśāstra or the time of the Buddha. We have already indicated

[1] The Kāmasutra refers to Vāstuvidyā as one of the 64 Vidyās.

in those chapters that we can trace the existence of the Vāstuvidyā even in those early periods. Here we give our conclusions from those chapters regarding the actual nature of the Vāstuvidyā of those early periods.

In the Rigvedic period, a ceremonial was performed at the time of building a house. A god named Vāstospati was worshipped on that occasion. He was later on in the Veda identified with Indra and Tvastṛin. From these references we may conclude that house building was already associated with religion. The ceremony performed was enjoined in all later works on Vāstuvidyā and the same Vedic Mantra is still cited. Tvaṣtrin later on became a traditional (or real) authority on Vāstuvidyā to the writers of the South Indian school. During this ceremony, the house itself, the door and the posts are also to be worshipped This system also was enjoined in all later Śilpaśāstras

A system of selection of the sites, a favourable site being sloping to the east, had also grown up This site-selection forms important chapters in all later works on Vāstuvidyā. A system of measurement to be followed in construction of various articles was also existing in this period.

In the Rigveda, all strong cities (purs) or houses (Harmmya) have been shown to have been connected with the Asuras. Some scholars think that Nagnajit the writer of Vāstuvidyā was an Asura King and he lived in the Vedic period. But besides Nagnajit, we have already found another architect, Tvaṣtrin in the Rigveda who was also regarded later on as an authority of the Drāvida school. Another name of 'Māna' in the Rigveda refers to the sage Agastya, another traditional authority of the writers on Vāstuvidyā of the Drāvida school. The existence of the Asura architecture and names of sages famous in traditions in the Vāstuvidyā of the Drāvida school may warrant us in coming to the conclusion that even in the Rigvedic period, a system of Vāstuvidyā arose in India which was different from that of the Aryans and which was Drāviḍa or Asura in character. We shall show later on that from a very early period there were really in India two schools of

Vāstuvidyā, the Central Indian (called the North Indian order or Nāgara) and the South Indian (or in the Vedic period it might have existed in other parts of India) called the Drāviḍa or Asura school. The existence of a Drāviḍa school of Vāstuvidyā in the Rigvedic period, therefore, might not have been improbable.

From all these discussions we may conclude that in the Rigvedic period a Vāstuividyā had been created which dealt with the selection of sites, worship of the God of Vāstu and the house, the doors and the posts; and that the Drāvida school of Vāstuvidyā might also have existed.

In the later Vedic periods the symbolic interpretations of structures, as found in later Śilpaśāstras, had already developed. The various parts of a pillar were regarded as representing various matters, as already mentioned The mystic elements in Indian Vāstuvidyā may thus be traced in the Vedic period.

The Brāhmanas, however, inform us many other aspects of the Vāstuvidyā. The word 'Śilpa' is found in the Brāhmanas, which included sculpture, singing, dancing and music. These matters were later on inseparably connected with the Vāstuvidyā.

Moreover, what has been said about the Asura or Drāviḍa Vāstuvidyā in the Rigvedic period is further confirmed by the Brāhmanas. The Śatapatha Brāhmana rejects the opinion of Nagnajit of Gandhara as he was a Rājanya. (See Chapter XXVII). The Aitareya Brāhmana mentions the sage Nārada as being the teacher of a Nagnajit. Now a Nārada is also regarded as a great authority by the writers on Drāvida Vāstuvidyā. The existence of the Drāviḍa Vāstuvidyā in the Rigvedic period may thus be confirmed by the Brāhmaṇas. This may further be proved from the chapters on the construction of the 'Śmaśāna' (Burial mounds) found in the Śatapatha Brāhmaṇa. It is said therein (Vide Ch. III) that the Āryas build there mounds without any base under them and in the shape of a square, whereas the Asuras, the Easterners and others build them round and with bases. This also clearly proves the existence

of the Asura school of architecture in the Brāhmaṇa period, as in the Rigvedic period.

It is in the Sūtra period that we meet with the earliest form of the Vāstuvidyā in a definite form. The Śāṅkhāyana Gṛihya Sūtra describes in two chapters the ceremonies that are to be performed at the time of house building. The Āśvalāyana Gṛ. Sūtra contains three chapters, which deal with, besides ceremonials, the examination and selection of the sites and the soil. It also contains the regulations to the effect that the soils of respective colours and tastes are to be assigned to the respective castes, a principle followed by all the later works on Vāstu, not only in this matter but also in allocation of sites to the different castes in a city or village, or of respective kinds of houses for the respective castes.

Regulations for the position of the doors of a house are also found in the Gobhila and Khādira Gṛihya Sūtras. This matter is also found described in all later works on Vāstuvidyā.

The position of trees to be planted around a house and prohibition of plantation of several trees therein are also found in the Gṛihya Sūtras as in later Śilpaśāstras. Symbolisms connected with architecture are also met with in the Śāṅkhāyana Gr. Sūtra. With this is connected also the principle laid down that different positions of the doors are the cause of different kinds of benefit or injury to the master of the house. Auspicious moments for the construction of structures are mentioned in the Pāraskara and the Hiraṇyakeśi Gṛ. Sūtras. It was thus that the Vāstuvidyā gradually became inseparably related to astrology as we find in later periods.

In the Sūtra period therefore we find the earliest form of the Vāstuvidyā. All the principles followed in later Śilpa works had developed. The technical side of the Vāstuvidyā however cannot be ascertained from the Sūtras, except from the regulations regarding the construction of Yūpas, fire-altars and burial mounds (containing of course only the bones and ashes of the dead)

When we come to the two great Epics (the exact dates of which are, however, unknown; though, I have shown, that the descriptions therein are undoubtedly of a very early age, and similar to those of the Pali Jatakas), we find the existence of the fully developed Vāstuvidyā, with its religious and, techinical sides.

The Ramayana refers to the experts in Sthāpatya (architecture) which presumes their knowledge in the Vāstuvidyā. The ceremonies performed at the time of building a house have also been mentioned. The Mahabharata also refers to the Vāstuvidyā directly and also to the ceremonies The auspicious days of house-building are also referred to in the Mahabharata. All the matters discussed in Grihyasūtras, therefore, may be supposed to have existed at the time of the epics. Besides this we find reference to Vādhas or obstructions to buildings as discussed in later Śilpaśāstras. The references to the two great traditional architects—Viśvakarmā of Gods (Aryans) and Maya (of the Asuras or Drāviḍas) are found in both the Epics. If Nagnajit of the Mahabharata be identical with the architect king of Gandhara of that name, reference to Nagnajit and Maya in the Mahabharata indicates the existence of the Asura or Drāvida school of architecture and Vāstuvidyā also in the time of the Epics The existence of Maya in the Khāṇḍava forest and his building the Sabhā of the Pāṇḍavas and his knowledge of a city near the Kailāsa may thus be explained by assuming the existence of the Drāviḍa School of architecture in the northernmost part of India if the traditions be regarded as having any truth.

Besides these matters, it is in the Epics that we find the existence of the technical aspects of the Vāstuvidyā. The Ramayana refers to the various kinds of architects whose services are also required in a house construction according to the Śilpaśāstras They are the Sthapati, Vardhaki, Takshaka and Sūtradhāra Houses of different kinds are mentioned in the Epics e.g Prāsāda, Saudha, Vimāna, Harmmya, Sabhā and the like. Though later lexicographers

took all these to refer to a building, the later Śilpaśāstras and perhaps also the Epics distinguished each of these from one another according to difference in their characteristics. This is apparent from the fact that whenever a prāsāda is described it is said to have contained many storeys, which is really the meaning of the word 'Prāsāda' according to later Śilpa texts[1]. The word 'Bhūmi' meaning a storey is found in the Śilpaśāstras. Besides these various types of buildings, houses, with technical names similar to those found in the works on Vāstuvidyā, are also mentioned in both the Epics. The Ramayana refers to the Padma, Svastika, Vardhamāna houses and a Vimāna called 'Pushpaka'. The Mahabharata mentions houses of Svastika, Vardhamāna, and Nandyāvarta types, seats called Pushpaka and Sarvatobhadra and a sabhā called 'Toranasphātika'. The different kinds of houses and Sabhā described in the Epics are similar to those in the works on Vāstuvidyā.• Construction of royal seats and those of gods also were matters discussed in the Vāstuśāstras. The six kinds of forts described in the Mahabharata are also described in later Śilpaśāstras. The towns described in the Ramayana and the Mahabharata were well planned with various kinds of roads such as Mahārathyas, Mahāpathas etc and present a picture similar to those described in the chapters on town-planning found in the later works on Vāstuvidyā.

Two more references in the Ramayana are interesting. The Ramayana in one place refers to the existence of doors with figures of Lakshmī on them. This kind of Lakshmī is not only found on Indian doors but is also enjoined to be placed on doors in the Indian Vāstuvidyā. Similarly a house is described whose length was twice the breadth. This proportion between the length and the breadth of a house is also directed to be observed by the Vāstuśāstra. Thus the two

[1] Śilparatna recommends that a Prāsāda can have 3 to 12 storeys.

Epics clearly indicate the existence of the Vāstuśāstras with its ceremonials and technical matters which formed the subject matter of all later works.

The condition of the Vāstuvidyā, as we may guess from the Epics, is almost similar to that presented by the Jataka stories and the Buddhist canons. From these two sources, therefore, we shall be able to know the state of Vāstuvidyā of a more definitely known period i.e. of about the time of the birth of the Buddha and after his death. The existence at that time of the Vāstuvidyā and experts (Ācharyas in that Vidyā) are mentioned both in the Jatakas and the Pali canons. Reference has been made to the ceremonials connected with house building as 'Pāsādamaṅgalam in the Jatakas as in the Mahabharata. The attribute 'pariyadāta śilpam' given to a carpenter (associated with erection of a house) indicates that house building was now recognised as a Śilpa The careful selection of wood for house-building is indirectly referred to in the Jataka stories. Reference to the Vāstuvidyā in the pali canon[1] indicates that, at the time of the Buddha, the Brahmins, the educated community, had already secured a knowledge of the Vāstuvidyā. The ceremonials found in the Śilpaworks and the site selection and collection of wood which formed part of the Vāstuvidyā were thus known to the Vāstuworks of the time of the Buddha

But the Jatakas and the Pali canons contain more references to the technical side of the Vāstuvidyā than what we have found in the earlier works. The distinction made in later Vāstu works between various kinds of houses is also found in the Pali works. The canons refer to such houses as Vihara, Mandapa, Addhayoga, Prāsāda, Harmmya, and Guhā and their distinctive features have already been discussed (Ch. VIII). The Jatakas also refer to Prāsādas, and they, as in the epics, always had many storeys (or Bhūmis). Technical names of buildings or roads found in later works are also mentioned in the Jatakas, such as, the

[1] Vide Ch. VIII above.

Kokanāda nāma Prāsāda, Pupphaka Prāsāda and the Utpalavīthi.

Besides this, various mouldings associated with various structures are also mentioned in the Pali works, as found in later works These were the 'Padmaka' moulding of a pillar, Ottha and Grīvā of a pinnacle, Bhittipāda, Vatthuka (basement), Gopānasi and the like, terms very familiar to the later treatises on architecture. The upper part of the door was called Udumbara and other parts of a door were called Prishtha Samghāta and Pāsaka. Stairs had an 'Ālambana', Vāhana, Suchiva and Ushnīsha. Subsidiary structures are also mentioned, such as the Hatthinakha, Bhitti (walls), Ahndaka, Uparipāsāda, Kannika with a Thupa, a window called Simhapañjara, Garbha-griha of various kinds and Koshthaka and the like. This indicates the growth of technical words which were later on known to the treatises on architecture, but the meanings of which were unknown even to the lexicographers of the later periods The measurements, Kukku (Kishku) and Vidatthi (Vitasti), were, as in later periods, known to the Jataka stories Windows of three kinds have been mentioned in the Pali canons. Besides this we learn of the existence of a kind of plaster, over which the frescoes were to be painted, made of some paste of a tree or the like and may be compared to the Kalka mentioned in later works on Vāstuvidyā[1]

Thus by the time of the Buddha and even before him the intricate matters of Vāstuśāstra may be supposed to have been fully developed The Vāstuśāstra was a branch of study and we may therefrom infer the existence of a large number of writers on Vāstuvidyā.

Lastly we may know the condition of the Vāstuvidyā from the Kautilya's Arthaśāstra which could not have been composed after the First century A.D.[2], if not in the 4th century B.C. It will therefore be the state of Vāstuvidyā in the period between the birth of the Buddha and the almost definitely

[1] Mayamatam, Śilparatnam etc.
[2] H. C Roy Chowdhury—Political History of India.

known date of the Vāstu works (1st Century A.D.), which, or quotations from which, have come down to us, i.e. the date of the writers who have been mentioned in the Matsya-purāṇa and the Brihat Samhitā. In fact, the discussions on Vāstuvidyā of the time of the Buddha and the Arthaśāstra may indicate that many works on Vāstu might have been written long before the first century A.D. i.e. the period when the Arthaśāstra was composed. (Whatever might have been the date of the Arthaśāstra, as this book was undoubtedly based on earlier works, its author had learnt also the matters regarding architecture from earlier writers on Vāstuvidyā). The date of Garga mentioned before may take the date of that earlier period to the 2nd century B.C.

It has been shown in the chapter on Kautilya's Arthaśāstra, that the author has defined 'Vāstu' in the sense in which writers on Vāstuvidyā took it. The undefined phrase 'Vāstukapraśastadeśa' indicates that the people of that time were well acquainted with the lands (as defined in the Vāstuśāstra) fit for building purposes The words 'Vāstu Hridaya,' 'Navabhāge,' 'Vāstudevatās' and 'Koshthaka', I have shown, cannot be understood without reference to the elaborate ceremonials and the division of the foundation into 81 or 64 Pādas as precribed in the Vāstuśāstras (i e the Vāstu Mandala) It may be noted here that in all texts Brahmā is the chief god of the Vāstumandala occupying the centre. Similarly, the main gateway is known as the Brahmā gate in the Arthaśāstra The predominence of Brahmā in Vāstuvidyā perhaps indicates a pre-Buddhistic date for the origin of the science, when Brahmā was the chief god of the people (See Cult of Brahmā, p. 90). The difference between 'Kāru' and 'Śilpa' was also apparent at that time.

The construction of the Antahpura with its face to the north or the east indicates the existence of rules regulating the placing of doors. Different kinds of buildings, Prāsāda, Harmmya and Sabhā, different kinds of roads in a city, and various kinds of Durgas discussed in the Arthaśāstra

clearly indicate the knowledge of intricate differences of these constructions. The symbolical interpretation of Indian architecture was also known, as is evident from the names of gates according to those of gods, Brahmmā, Indra, Yama and Senāpati. The technical words used in Vāstuśāstras are also mentioned; such as, Kapiśīrsa, Indrakosha, Hastinakha, Tala, Kapāṭayoga, Sandhi, Khaṇḍas, Vīja and the names of the different parts of a pillar Structures of intricate construction like Gopuram, Torana, Pratoli, Indrakosha also indicate the existence of the names found in the Vāstuśāstras. The units of measurement used in treatises on architecture are known to the Arthaśāstra. The technical words such as Vishkambha and Āyāma (width), Ucchraya (height) and Asri (the sides or corners) indicate great acquaintance with the works on Vāstu

The acquaintance of the Arthaśāstras with various injunctions of the Vāstuśāstras may also be inferred. Thus the height of the wall is laid down as twice its breadth; the depth of the ditches is to be regulated; and dimensions of the doors, its height and width were fixed as according to injunctions of the Vāstuśāstras. Doors were decorated with figures of gods and Chaityas. The mention of two mixtures, Vaidyutabhashma and Karakabāri, which made structures fire-proof is interesting and this is found also in the Matsyapurāna.

The system of town-planning by assigning different classes of people to different parts of a city is similar to that found in the Vāstuśāstras. The rules regarding constructions of roads also presuppose the existense of such rules of the Vāstuśāstras at the time of the Arthaśāstra. Kauṭilya refers to a school of Parāśara and Viśālāksha who might be writers of Arthaśāstra as well as Vāstuvidyā, as many other writers of Arthaśāstra are mentioned also as writers on Vāstu (E. G. Uśanas, Vṛihaspati).

Last of all, by comparing the language used in the Arthaśāstra chapters on architecture with that of the Vāstu works, we cannot but conclude that the author of the Arthaśāstra was summarising in a Sūtra form the injunctions which he

found in the works on architecture existing in his time. This will be shown in a chart form below. There are reasons to believe, as will be evident from the chart, that the Arthaśāstra chapters on Vāstu had some similarity with Drāviḍa Vāstuvidyā.

From these discussions in this chapter we may infer that by the time of the Buddha and Ist cent. A.D. and even long earlier, the Indian Vāstuvidyā had fully developed. Many writers on Vāstuvidyā had already been born and had written their works. The technical and religious sides of the Vāstuvidyā had grown up, and it was a science well studied by the educated community. We may also infer that two schools of such Vāstuvidyā were coming down from a very early period and works of both the schools had already been written by the preceptors of Vāstu. It was these works and perhaps also some later writers who are mentioned in the Matsyapurāṇa. These were later on incorporated in the Purāṇas, Āgamas and Tantras, summarised in works of compilations and astrological treatises, and only a few of them have come down to our times, some perhaps not in the original form but as recensions, or as Ghosh says, "recensions of recensions".

APPENDIX C

1. Arthaśāstra, P. 40—

मानुषेनाग्निना त्रिरपसव्यं परिगतमन्तःपुरमग्निरन्यो न वहति

Cf. Matsya Purāṇa, Ch. 219. 5.

गृहे त्रिरपसव्यन्तु क्रियते यत्र पार्थिव
नान्योऽग्निर्ज्ज्वलते तत्र नात्र कार्या विचारणा ॥

2. Arthaśāstra.

वैद्युतेन भस्मना मृत्संयुक्तेन करकवारिणा अवलिप्तं च

Cf. Matsya Purāṇa.

सामुद्रसैन्धवयवा विद्युद्दग्धा च मृत्तिका
तयानुलिप्तं यद्वेश्म नाग्निना दह्यते नृप ॥

3. Arthaśāstra, P. 51— वास्तुकप्रशस्तदेश
   Cf. Brihat Samhitā. Ch. 56.9:—
   ता एव तेषां शस्यन्ते देवतायतनेष्वपि ।
4. Arthaśāstra, P. 51.
   उर्ध्वचयं मञ्चपृष्ठं कुम्भकुक्षिकं वा हस्तिभिर्गोभिश्च क्षुण्णं
   Cf. Samarāṅgana, Ch. 10.
5. Arthaśāstra.
   वप्रस्योपरि प्राकारं विष्कम्भद्विगुणोत्सेधमैष्टकं
   द्वादशहस्तादूर्ध्वमोजं युग्मं वा आ चतुर्विंशतिहस्तादिति कारयेत् ।
   Cf. Samarāngan, Ch. X, verse 25-26.

   वप्रोर्ध्वभागगं मध्यं स्थूलोपलशिलाचितम् ।
   कुर्यात् प्राकारमुद्दामं यद्वा पक्केष्टकामयम् ॥
   ज्यायान् करैर्द्वादशभिर्दशभिर्मध्यमः स्थितः
   कनीयानष्टभिर्हस्तैर्विस्तारः स्यात् त्रिधेत्यसौ ।

   Cf. Mayamatam, Ch X 44
   प्राकाराश्चेष्टकया द्वादशहस्तोच्छ्रिताहीनाः
6. द्वादश हस्तात् उर्द्ध्वमोज युग्मंवा आ चतुर्विंशति हस्तात् (Arthaśāstra)
   Samarāngaṇa Sūtradhāra—
   प्राकारोच्छ्रयमिच्छन्ति नापि युग्मकरोन्मितम्
   (Chapter X, Verse 28).
7. Arthaśāstra—(Page 55)
   आपराजिताप्रतिहतजयन्तवैजयन्तकोष्टकान् शिववैश्रवणाश्विश्रीमदिरा-गृहं च पुरमध्ये कारयेत् । कोष्ठकालयेषु यथोद्देश वास्तुदेवताः स्थापयेत् ।
   Mayamatam, Ch. X, Verse 49-50

   इन्द्रश्चवासुदेवो गुहो जयन्तश्च वैश्रवणः
   अश्विन्यौ श्रीमदिरे शिवश्च दुर्गा सरस्वती चेति ।

   Atri Saṃhitā, XI. 41.

   तथा न्यसं सुरादेवीं श्रियं च हरिरक्षकम् ॥

   (Cf. Vaikhānasāgama Paṭala VII) Cf Āryāstava in the Harivamśa "Surā Devī tu bhūtesu"
   Śilpa Ratnam V. 14½—15½.

   इन्द्रश्च वासुदेवो गुहो जयन्तश्च वैश्रवणः ॥
   अश्विन्यौ श्रीमन्दिरशिवौ च दुर्गा सरस्वती ॥

   Here Śrī mandira appears to be a mistake for Śrīmadirā.

8. Arthaśāstṛa, Page 55.
चातुर्वर्ण्यसमाजीवे वास्तुहृदयादुत्तरे नवभागे यथोक्तविधानमन्तःपुरम्...
Bṛihat Saṃhitā, Ch. 53 46.
मध्येब्रह्मा नवकोष्टकाधिपो
Bṛihat Saṃhitā 53. 54.
हृदये ब्रह्मा
Mayamatam, Ch. VII. 54.
वास्तुमध्ये तु मर्म्माणि ब्रह्मा हृदयमुच्यते

CHAPTER XII

DEVELOPMENT OF VĀSTUVIDYĀ FROM FIRST TO SIXTH CENTURY A.D.

IN the last chapter it has been shown that the Vāstuvidyā in some form had been coming down in India from the Vedic period. We have traced its nature from the earliest period to the First century A.D. (the latest possible date of the Arthaśāstra). Many of the earliest writers on Vāstuvidyā (mentioned in Chapter X) might have flourished in this period. Garga and his disciples perhaps flourished before the First century A.D. But unfortunately we have not got the works of the earliest Vāstuśāstra writers. Fragments of their works have been, as has already been said, found quoted in later writings. In trying to know the nature of the Vāstuvidyā in this period, therefore, we shall have to collect the materials from those fragments. We shall then compare these materials with what we know of the Vāstuvidyā from the earliest available works on Vāstu.

Here we give below in a tabular form all those matters on Vāstuvidyā which we have gathered from the previous Chapters (II to IX).

1. Ceremonials connected with house-building called 'Vāstu Karma'; 'Vāstumaṅgala'; 'Vāstuhoma'; 'Vāstuśamana' in the Grihyasūtras, Pali works and the Epics.

2. Selection of sites called 'Vāstu Parikshā' in the Gṛihya-Sūtras

3. Selection of soils—included in 'Vāstu Parikshā' in the Grihyasūtras

4. Soils of different quality, shape, colour, taste meant for different castes—discussed in the 'selection of soil' in the Gṛihyasūtras.

5. Regulations regarding position of doors and posts—discussed in 'Vāstu Parīkshā' chapter in the Gṛihyasūtras, and also the Arthaśāstra.

6. Regulations regarding plantation of trees;— discussed in Gṛihyasūtra.

7. Collection of wood—inferred from references in the Arthaśāstra.

8. Division of the site into various Padas or Koshṭhakas each with a presiding deity—connected with the ceremonials and inferred from references in the Arthaśāstra. Its existence is recorded in the Gṛihyasūtra Pariśishṭas and may be inferred from the Mantras and references mentioned in the Gṛihyasūtras themselves.

9. Relation of Vāstuvidyā with astrology—auspicious moments of house-building—discussed in the Gṛihya Sūtras and referred to in the Epics.

10. Different results accruing from constructions of different kinds—discussed in Khādira Gṛihya Sūtra (IV. 2. 14-15).

11. Symbolical interpretations—mentioned in the Gṛihya Sūtras and the Arthaśāstra.

These matters are more or less connected with religious matters and covered with a mysticism which pervades all the spheres of activities of the Indians. Actual architectural matters were also undoubtedly discussed in the earliest treatises on Indian architecture, as will be evident from the matters discussed below in continuation of the above.

12. Vāstuvidyā was a part of the Śilpaśāstra and connected with sculptures, painting, dancing and music—this is known from the later Vedas, Arthaśāstra regulations regarding decorations to be placed on doors and references in the Pali Jatakas and Epics to sculptures and paintings on houses. Śilpa, according to the commentator of the Kuṭṭanimatam, is of eight kinds and includes ālekhya (portrait painting), lekha (writing), dārukarma (wood work), citikarma (piling of altars or houses of brick or earth), stone work, silver work, Devakarma (imagemaking) and Citrakarma (painting proper).

13. Different kinds of houses—Prāsāda, Vimāna, Harmmya, Sabhā, Mandapa, Śālā—having different

characteristics—discussed in Pali canons and referred to in the Vedas, the Jatakas, the Epics and the Arthaśāstra.

14. Classification of structures such as buildings, pillars gates and roads in a city with technical names—referred to in the Epics and Jatakas.

15. Calculation of cardinal points—supposed from references in the Grihya Sūtras and the Arthaśāstra.

16. Units of measurements—known to the Jatakas and the Arthaśāstra, besides the Epics and the Śulvasūtras.

17. Regulations prescribing different proportions to be followed regarding height, breadth, length, thickness and the like of various structures—Found in the Jatakas, Arthaśāstra, Śulva Sūtras etc

18. Materials to be used—lime or white wash, plasters on walls for paintings, preparations for making structures fire-proof and stable (the Vajralepa), wood, bricks and stones—discussed in Śulva Sūtras, Grihya Sūtras, Pali canons, and Arthaśāstra.

19 Town-planning—inferred from the Epics, and Jatakas and discussed in the Arthaśāstra

20 Classification of forts—rules of their construction—descriptions in the Epics, Jatakas, Arthaśāstra

21. Assignment of different sites in a city to different kinds of people—discussed in the Arthaśāstra.

22. Rules regarding private houses—Ekaśāla, Dvi-śāla and Chatuḥ Śāla Gṛhas—references in the Grihya Sūtras, Epics, Jatakas and the like.

23 Technical terms of different kinds of mouldings—found in the Jatakas, Pali canons and the Arthaśāstra.

24 Temples have been referred to, but the word 'Mandira' is not mentiond

25. Many-storeyed buildings—referred doubtfully in Rigveda and mentioned in Pali Jatakas and conons, Epics and Arthaśāstra

26 Two different schools of Vāstuvidyā — of the Devas and Asuras—Names of traditional architects, Viśvakarmā, Tvastā, Maya, Prahlāda and Nagnajit — and sages like Vṛihaspati, Nārada,—references found in the Rigveda,

Brāhmanas, Epics. The Arthaśāstra perhaps belonged to the Drāviḍa school.

These twentysix important matters regarding Vāstuvidyā were thus known to the Indians from a very early period till the Ist century A.D. That there were authors on Vāstuvidyā in this period is therefore quite evident. The Chapter X on 'the earliest writers on Vāstuśāstra' has, however, shown that before the 4th century A D., there must have been in India a large number of authors on Vāstu works, many of which are lost to us, but quotations from them prove, beyond doubt, their existence. These quotations will therefore indicate the nature of the Vāstuvidyā from the 1st century A D to the 4th century of which no available works on Vāstu has yet been procured.

The following table shows that the 26 matters discussed in the foregoing pages were also the topics dealt with in the works on Vāstuvidyā, quotations from which are available to us.

No.	Subject matters	Names of authors, referred to in quotations, who dealt with matters here discussed:—
1.	Vāstupurusha	Vrihaspati.
2-4.	Examination of soil and sites	Garga, Nārada, Bhṛigu, Vasishṭha.
5.	Position of Doors.	Garga, Nandī, Viśvakarmā, Bharadwāja, (Yamā), Brihaspati
6.	Plantation of trees	Garga, Brihaspati.
7.	Collection of wood.	...
8.	Vāstu Padas.	Parāśara, (Bharata), Viśvakarmā.
9.	Vāstuvidyā & astrology.	Garga.
10.	Results of constructions.	Garga, (Kiraṇatantra), Nārada.
11.	Symbolical interpretation.	Garga.

No.	Subject matters	Name of authors referred to in quotations who deal with matters here discussed:—
12.	Sculpture or Iconography.	Nagnajit, Maya.
13-14.	Different kinds of houses.	Garga, (Kiraṇatantra), Viśvakarmā.
15.	Śaṅku.	...
16.	Units of Measurement.	Viśvakarmā.
17.	Proportion of different structures	Viśvakarmā, Garga, (Kiraṇatantra).
18.	Materials.	Kiranatantra.
	Stone.	Viśvakarmā and (Hiranyagarbha).
19-22.	Private houses.	Garga, (Kāśyapa), (Kiranatantra) Bṛhaspati.
23.	Mouldings	(Kiranatantra), (Kāśyapa), etc.
24-25.	Temples.	(Kāśyapa), Viśvakarmā, Maya, Manu etc
26.	Different schools.	Nagnajit.

In this table the age of the authors or works put in brackets is unknown (they might not have existed before the 6th or 7th century), but they were undoubtedly early authors whose works are now lost to us.

The matters referred to above may be regarded to have been the principal subjects discussed in the works on Vāstuvidyā which are now lost to us. We shall show first that almost all these matters are found dealt with in the earliest available texts—the Viśvakarmaprakāśa, Matsyapurāṇa, and the Bṛihat Samhitā[1].

[1] I shall henceforth give initials of the works referred to here; for Viśwakarma Prakāśa—V. P., Matsyapurāṇa—M P. and Bṛihat Saṃhitā—B. S.

1. Ceremonials—Vis. Prs., Chapter 1, Verses 93-100; Mat. Purāṇa—Ch. 252-253.

Bṛit. Saṃhitā—53. 125-26. (Not being a religious book it does not give details of ceremonies.) In these books too they are called Vāstupujā, Vāstūpaśamana.

2-4. Selection of sites and soils—V. P. I. 24-71; M. P. 253. 11-18. B. S. 53. 91-96.

5. Position of doors—V. P II; M P. 254. 1-14; 255. 7-18. B S. 53. 70-81.

6. Plantation of trees—V. P. VII. 106, M. P. 255. 20-24; B. S. 53. 83-88.

7. Collection of wood—called 'Dāru Āharaṇa' V. P. IX; M. P. 257; B. S. 53. 120-123

8. Division of sites into 64 or 81 Padas—V. P. I. 5-23; M. P. 253 19-48; B. S. 53. 2-3, 41-56.

9. Vāstuvidyā and astrology—V. P. II. 1-87, III. 83. M P 253. 1-9, B S. 53, 101-111.

10 Results of various kinds of constructions—V. P. I. 40-60, II. 103 ff, VI 1-10 and VII; M. P. 54. 4-14; B. S. 53. 33-41.

11 Symbolical interpretations—they are not mentioned in one place in any text book; but all the rules point to some symbolism. The various mystic figures according to which plans are to be made (e g Sarvatobhadra, Nandyāvarta, Vardhamāna and Svastika) and names of pillars (Mat. P. 255. 8-9) indicate that structures had always some symbolism behind them.

12. Vāstuvidyā's relations with Śilpaśāstra, sculpture, painting, music --

The Viśvakarmaprakāśa besides dealing with architecture also contains chapters on.—Size of the Linga and Pīṭha, excavation of tanks, wells, planting of gardens, construction of bedsteads and cradles which are included in Śilpaśāstras. Besides these, it enjoins various kinds of sculptures to be engraved on doors etc. which indicates Vāstuvidyā's relation with sculpture. Chapters on painting have not been found in the extant text. The Tibetan version of Chitra-Lakshaṇa of Viśvakarmā might contain the chapters on painting com-

posed by Viśvakarmā. Viśvakarmā's writing on iconography and iconometry might have survived in the South in the other works attributed to Viśvakarmā, as referred to in Acharya's book (p. 98-99)

That Viśvakarmā's work or other works written in the period under discussion also dealt with iconography is evident from chapters on iconography found in the Matsyapurāṇa (ch. 258-261) and in the Brihat Samhitā (chapters 59-60) immediately after the chapters on Vāstuvidyā. The Matsyapurāna and Brihat Samhitā, however, being not primarily Vāstuśāstra, did not refer to the science of painting. We do not find any reference to music and singing in the available texts of this period; but in the Vāstu works of the South it is stated that an architect must also have knowledge of these two branches of fine arts. Moreover, in later Vāstuśāstras, of all the schools, the various 'Rasas' are enjoined to be depicted in sculptures on buildings The depiction of various "Rasas" prescribed and figures of dancing and musical parties actually found on temples of later periods indicate that architecture was inseparably bound with dancing and music References to these things in later śilpa works may point to its existence even in earlier periods (cf. Nagnajit's work 'Chitra Lakshanam').

13-14. Different kinds of Houses and other structures —and their classifications:—V. P II 103-124; II—153-197; 299-325, IV—13-20 M P 254—1-38, 270-1 ff; B S. 53. 31-41; Classifications of buildings and temples are discussed in a separate chapter

15. Calculation of cardinal points—

The extant texts know how to do it by placing the 'Śaṁku'. This is found in:—V. P. IV.—45-46, VII 51-55.

The Matsyapurāna and the Brihat Saṃhitā do not refer to the 'Śaṁku' but contain detailed instructions regarding the directions occupied by different structures. The existence of a system may thus be presupposed. Moreover, the Brihat Saṃhitā, an astronomical work, must have known something regarding this matter.

16. Units of measurement.—V. P. IV. 37-40. M. P.—References to Ratni, Aṅgula, Hasta, Kara in chapters on Vāstu; and to these units in Ch. 258. 17-19. B. S.—58. 1-2.

17. Proportions of different structures.

This matter is found in all these works regarding different parts of a structure, like the length and breadth of the temples, king's houses, houses of Brahmins and other castes and of doors; regarding proportion between the different parts of a pillar, or of a temple or the like. This matter is in fact the most important thing and the essential matter in all treatises on architecture of this and later periods. This therefore need not be discussed in detail here. References to these may be found out throughout all the books under discussion.

18. Materials—'Dāruāharaṇa' chapter has been already mentioned. For other materials V. P. VI. 12—32 (stones used). M. P. 54.41, 169, 47 (stone and brick temples); B S. 53 23. Fire-proof materials—M. P. Vajralepa—Bṛhat Samhitā (taken from Maya).

19-21. Town planning, forts and different sites for different men:—V. P. XI (taken from Brahmayāmala) M. P. 217. 1-19½, 254. 14-34. B. S. 52. 4-10; (only deals with sizes of houses of kings, commanders, ministers, queens, princes etc.)

22. Private houses of śālā type;—V. P. II—102, 128; M. P. 254. 1-13; B. S. 53. 32-41.

23. Technical terms of mouldings etc.:—

Of Pillars—V. P. II. 168-169; M. P. 255, 5-6. B. S. 53. 29-30.

Of doors—V.P. II. 163-164 etc; M.P. 270. 19½-20½ B.S. 53. 26-27.

Of temples—V. P. VI, M. P. 269, B. S. 56.

24-25. Temples and their classifications—see 'mouldings of temples' above. The 'Bhūmis' (storeys) on the temples, are mentioned and the word 'Prāsāda' has been used to refer to a 'temple'—which could have 12 storeys according to the Bṛihat Saṃhitā; but 16 storeys according to the Matsya Purāṇa and Viśvakarma Prakāśa; but the reading

in the latter works appear to be mistaken or later interpolations (see Appendix A). Besides these, see chapter on "Age of the classification of temples" (Ch. XVI).

26. Different schools of Vāstuvidyā:—

The Viśvakarmaprakāśa, as the name indicates, was a work ascribed to Viśvakarmā, the traditional architect of the gods. We may suppose, therefore, that it belonged to the school of North Indian architects. As shown before (Ch. on 'Teachers of Vāstuvidyā') the available book is a later recension, written by Vāsudeva, of the actual work of a Viśvakarmā. As both Viśvakarmā and Vāsudeva are mentioned as preceptors of Vāstuvidyā in the Matsyapurāna, I take this work to be earlier than the Matsyapurāṇa. Both these works agree in many respects and the similarity is so great, that the indebtedness of the one to the other is obvious. The Viśvakarmaprakāśa also mentions as earlier authorities the names of Garga, Parāśara, Vrihadratha, Viśvakarmā. We may, therefore, take these authors as belonging to the school of Viśvakarmā (North School). The quotations from Garga's work found in the commentary of Bhattotpala are also exactly similar to those found in the Matsyapurāna and the Bṛhat Samhitā Garga, therefore, undoubtedly belonged to the school to which Viśvakarmā, Vāsudeva, the author of the Matsyapurāna and Varāhamihira belonged. Varāhamihira also acknowledged his debt to Viśvakarmā, Gargādi and Manvādi, preceptors like Garga, Manu etc. Thus, we may guess the existence of a school of Viśvakarmā or the Northern School before the Matsyapurāṇa.

Neither the Viśva-Prakāśa nor the Matsyapurāṇa and the Bṛhat Saṃhitā refer to the Nāgara school of Vāstuvidyā. Dr. Jayaswal thinks that the Nāgara school arose in the time of the Bhāraśiva Nagas i.e. about 2nd century A.D. and that the Agni Purāṇa first refers to the Nāgara school. Regarding the first point, more will be discussed in a later chapter (See Ch. XXVIII). But it must be mentioned here that though the Matsyapurāṇa does not refer to the Nāgara school, the architecture dealt with therein

cannot but be that of the Nāgara school. This is evident from the fact that the names of temples in the Matsyapurāṇa and their characteristics are referred to in the Samarāṅgaṇa-Sūtradhāra as those of the Nāgara temples. Thus the absence of the name 'Nāgara' in the above works does not prove that the Nāgara school developed after the Matsyapurāna or the Brihat Saṃhitā It was in fact a later development of the Viśvakarmā school as will be shown later on (Ch. XXVIII).

The Viśvakarmaprakāśa does not refer to the school of Maya (the Southern school), the traditional architect of the Dānavas (Dravidians). The work 'Mayamatam' ascribed to him (as discussed before), however, indicates the existence of a writer of Vāstuvidyā named Maya, though the extant work might be a later recension. That such a work existed is known from the name of Maya included in the list of preceptors in the Matsyapurāna. The Brihat Samhitā also refers to a work of Maya with which Varāhamihira disagreed in some matters (Ch 56.29), ostensibly because Varāhamihira was following the school of Viśvakarmā; though regarding the preparation of the Vajralepa, Varāhamihira acknowledges his debt to Maya (Ch. 57). Thus Maya's school was different in many respects from the school of Viśvakarmā. The Brihat Samhitā therefore clearly refers to the Drāvida school of architects and their writings on Vāstuvidyā This is further proved by the references in the Bṛihat Samhitā to Nagnajit, a writer of another (Drāviḍa?) school, whom we have already discussed before. Thus the earliest available works on Vāstu clearly indicate the existence of two schools of writers on Vāstuvidyā in India before the Matsyapurāna and the Bṛihat Saṃhitā—the Drāvida and the Viśvakarmā school, later on known as the Nāgara school.

In the foregoing pages, therefore, I have submitted strong reasons for believing that from the time of the Buddha till the time of the Matsyapurāṇa and the Bṛihat Samhitā (i.e. from the the 6th cent. B.C. to the Gupta period, approximately 6th cent A.D.) there were in India innumerable

works on Vāstuvidyā. The matters dealt with in these works were similar, on one hand, with those found in pre-Buddhistic literature, and on the other hand, with those found in the works of the later periods. These works are known from the Matsyapurāna and the Bṛihat Saṃhitā, from several extant works (which, however, might be their later recensions) and also from quotations from them found in the later works. Though they are now lost to us, we may guess what matters they dealt with. Some of them might have existed in some form even before the Buddha. We further know that during this period the Drāvida school also produced many works on Vāstuvidyā. Śilpaśāstras were taught in the Nalanda University in the 7th century A D. It was on the basis of these Vāstu works that all the available texts on this subject were written. The matters discussed in these chapters are also to be found in all later works dealing with Vāstuvidyā (see comparison by Acharya, pp. 89-120).

Chapter XIII

DEVELOPMENT OF VĀSTUVIDYĀ FROM THE SIXTH CENTURY

We have already traced the development of the Vāstuvidyā upto the time of the Bṛihat-Saṃhitā. We have shown that very few of the works written before the Matsyapurāṇa have survived upto our times. The Matsyapurāṇa contains a mere summary, and being a religious work cannot be expected to inform us all matters contained in those early works. The Bṛhat Samhitā was also an astronomical work and, as the author himself says, he only gives a gist of the writings of his predecessors. The Viśvakarmaprakāśa was also not the original work of the great author of that name We may, therefore, conclude that from this period, the Vāstuvidyā was incorporated in a summarised form in many religious works. Construction of a house being connected with religious matters, such rules had to be studied by the priests and hence, even upto the present day, we find such chapters on Vāstu in many works connected with religion Besides the Matsyapurāna, we find another religious work the 'Kiraṇatantra', a tantric book, being quoted by the commentator of Bṛhat Samhitā (Bhaṭṭotpala). These quotations, which refer to matters similar to those included in the Bṛihat Samhitā, indicate that this work contained matters on architecture of the Northern school. We may thus conclude that many of the Tantras of Northern India incorporated matters of Vāstuvidyā before the 9th century (see also below). Similarly in South India, many subjects relating to Vāstuvidyā were incorporated in the Āgama works. The Dīpta Tantra (Ms.), however, appears to be a South Indian work. Many of the original works on Vāstuvidyā must have survived long after the Matsyapurāṇa and the Bṛihat Saṃhitā. This is evident from the innumerable works quoted by the commentator of the Bṛihat Saṃhitā viz. Bhaṭṭotpala. His date is generally

believed to be 965-67 A.D. but according to Mr. D. C. Bhattacharya, (Ind. Culture, 1945) he lived in about 857 A.D. Thus these works were available till the 9th or the 10th century A.D.

In North India, moreover, after the Matsyapurāṇa, other Purānas also began to incorporate the matters on Vāstuvidyā. Hence it is that we find such chapters in the Agni Purāṇa, the Garuḍa Purāna, the Devī Purāṇa, and the Bhavishya Purāna. These works, therefore, give an idea of the Vāstuvidyā of a later period. Similarly the Āgamas contain the Vāstuvidyā of the Drāviḍa School. It is not, however, certain that all these Purānas and the Āgamas were later than the Sixth century A.D. According to P. Bagchi, the Brahmayāmala Tantra and the Pingalāmatam which contain matters of Vāstuvidyā are not later than the Sixth century. On the other hand, it will be shown below that the Vāstuvidyā in some of the Āgamas has certain relation to that of North India rather than to that of the South, and hence might contain traditions of the pre-sixth century A.D. (Because after the 6th century we notice a great difference between the works of the Northern and those of the Drāvida School).

Along with the incorporation of Vāstuvidyā in the religious books, the original treatises on architecture also, however, continued to be studied in both North and South India, as the result of which we have got several later works on Vāstuvidyā. With the growth of Indian architecture, many new schools of architecture arose; such as the Lāṭa, the Vairāṭā (or Vavāta), the Bhūmija, Kalinga and Andhra and perhaps also the Vesara school. Though they were perhaps mere ramifications of the Nāgara and the Drāvida schools, we may presume that works were produced by also the architects of those schools for the guidance of the builders in those styles. Some of these works also we may find summarised in the Purānas, Tantras, and Āgamas. But, that original works dealing with technical architectural matters were also written is evident from some of the later

extant works (Samarāṅgaṇa Sutradhāra, Bhūvana-Pradīpa Śilpāratnam, Maṇḍana's works, Mānasāra etc.).

The Agni Purāṇa contains several chapters on Vāstuvidyā which are very simular to those in the Garuḍa Purāṇa. Moreover the book Hayaśīrṣapañcharātram, (Saurakāṇḍa and also perhaps other kāṇḍas) though a religious work contains several chapters on Vāstuvidyā. I have strong reasons to believe that it was either from some common source, another work on Vāstuvidyā that both the Hayaśī-Pan. R. and the two Purānas, mentioned above, have taken their materials, or the Purānas directly copied from the Pañcharātra treatise. That the last is the possibility is evident from the fact that Chapters 39 and 42 of the Agni Purāna (dealing with Vāstuvidyā) are said to have been related by 'Hayagrīva' or 'Hayaśīrsa'. The chapter 39 says that these matters were related before in 25 works of the Pañcharātra or the Saptarātra school viz., (1) Hayaśīrsa Tantra, (2) Trailokyamohana Tantra, (3) Vaibhava T, (4) Paushkara T., (5) Prāhlāda T., (6) Gārgya T, (7) Gālava T., (8) Nāradiya T., (9) Sampraśna, (10) Śāndilya, (11) Vaiśvaka, (12) Sātya T., (13) Śaunaka, (14) Vāsishtha, (15) Jñānasāgara, (16) Svāyambhuva, (17) Kāpila, (18) Tārkshya, (19) Nārāyanika, (20) Ātreya, (121) Nārasimha, (22) Ānanda, (23) Āruna, (24) Baudhāyana, (25) Ārsha Tantras.

Now I have no doubt that though these works are mentioned here as Tantras, their names indicate that some of these were the works of authors who are also known as famous writers on Vāstudvidyā.

Of them, we already know the following to be works or authors of the Vāstuvidyā.—

(1) Hayaśīrṣa Pañcharātra

(2) Prahlāda.

(3) Garga.

(4) Nārada. (A 'Nārada Pañcharātra' is available).

(5) Viśva or Viśvaka (Mānasāra refers to three works as Viśvasāra, Viśvabodha, Viśva-kāśyapa; and the Śilpasaṃgraha also refers to the Viśvasāra).

(6) Śaunaka.
(7) Vasishṭha.
(8) Kapila-Pañcharātra is quoted in the Vīramitrodaya.
(9) Atri. (The recently discovered 'Atri Samhitā' and the Ātreya Tilaka are books of the Pañcharātra school and contain reference to South Indian and north Indian architecture respectively).

We may thus conclude that the Agni Purāna chapters on architectural matters were based on earlier works. The Hayaśirṣa, the first mentioned author, must here refer to the writer of the Hayaśirsa Pañcharātram There is thus no doubt that the Agni Purāna (also perhaps the Garuda Purāna) was based on the Hayaśirṣa Pañcharātram. In fact, the Agni Purāna architecture is wholly similar to that described in the Manuscript of the Hayaśirsa in the Varendra Research Society Museum at Rajshahi. The classification of temples into 45 kinds (Vairājādi) is exactly similar in the Hayaśirṣa, Agni Purāna and the Garuda Purāna. Scholars like H. P. Sastri, P. V. Kane and R. C. Hazra (Ind. His. Quarterly 1936, p. 683 ff) have assigned the present Agni Purāna between 800 and 900 A.D. The Hayaśirṣa Pañcharātram therefore might have been composed after the sixth and before the ninth century A.D. That the Hayaśirṣa Pañcharātram was composed before the 10th century A D. is also apparent from the fact that while the number of Vairājādi temples is sixty-four according to the Samarāngana, it is fortyfive according to the former work.

Besides the Hayaśirsa Pañcharātram, the Agni Purāṇa further shows that before the ninth century, architectural matters had been incorporated in many works of the Pañcharātra or Saptarātra school and also in the Purāṇas. Out of the 25 works on Tantra mentioned in the Agni Purāna, some are known to us from the Matsyapurāṇa. But there are some other works which are not well known to us. Some of them might have been earlier or later than the Matsyapurāṇa. Thus the Nārāyaṇika mentioned above might be the work of Nārāyaṇa who is mentioned in the

Vishnudharmmottaram as the creator of paintings. Another Nārāyaṇa is known as the author of the Tantra-samuccaya, a very late South Indian work, to whom perhaps, Chap. IX in the Śilpasaṃgraha has been ascribed (Acharya—Indian Architecture, p. 108). The Paushkara Tantra was perhaps the work of the same Pushkara who is said to have related the chapters 217 to 237 of the Agni Purāṇa itself (dealing with matters of Arthaśāstra).

In fact, the Hayaśīrṣa-Pañcharātra and the Agni Purāṇa indicate that at a certain time, Vāstuvidyā became incorporated in the works of the Pañcharātra school, as it was also inserted into many of the Purāṇas. When the Tantras of the Pañcharātra school arose is difficult to surmise. The learned editor of the Atri Saṃhitā has said that the Pañcharātra school is a very early one; but it is very difficult to prove whether the Tantras of this school, as they are found today, are earlier or later than the 4th century A.D. Some of these works dealt with architecture of the Northern school, whereas the Atri Saṃhitā, as said before, deals with the southern architecture. Another published book of this school, the Śāstramuktāvalī or Śrī-Sātvata Saṃhitā deals with northern architecture (Chap. XXIV of the Saṃhitā). The Jayākhya Saṃhitā does the same. The Hayaśīrṣa-Pañcharātra also mainly deals with the northern architecture, but incidentally refers to the other schools. Moreover, it must be mentioned here that the Hayaśīrsa Pañcharātra is not the name of one book only. One belonging to the Vaiṣnava Pañcharātra school is found quoted in the Haribhaktivilāsa. Another is mentioned in Raghunandana's Maṭhapratiṣṭhā Tattvam as the Saṃkarshana Kāṇḍa of the Hayaśīrṣa. The Varendra Research Society manuscript contains the Saura Kāṇḍa of the Hayaśīrṣa and mainly deals with the worship of Sūrya.

We may know from the Hayaśīrṣa Pañcharātra and the Agni Purāṇa that though acquainted with other schools, the Vāstuvidyā related therein was of the Nāgara school. In the Agni Purāṇa chapter on general characteristics of temples (Prāsāda Sāmānya Lakshaṇa, Ch. 104. 21½),

it is said that "These names are of temples of the Nāgara school. The names of Lāṭa temples are also the same." The Hayśīr. P. also (Ch 18) says that "these are names of Nāgara temples; the Lāṭa, Drāviḍa and Vavāṭa (Vairāṭa) temples differ"; and points of difference are also noted in the next verses. We may, therefore, conclude that the Lāṭa, and other schools of architecture had already developed before the 11th century (Samarāngaṇa) as a little variations of the Nāgara school. The Visnudharmmottaram is a later compilation of the North Indian style (7th to 9th century) and so were the works of Maṇḍana Sūtradhāra (15th century). We cannot trace the history of North Indian Vāstuvidyā after the 15th century The Rājadharmakaustubha of Anantadeva was a compilation of the 17th century, quoting the Purānas and the Brihat-Samhitā.

The Samarāṅgana Sūtradhāra, I suspect, is a work of the Lāṭa school. If it was written by Bhoja of Malwa, Malwa being near to Guzerat (or Lāta), the book primarily must have dealt with the Lāṭa school of architecture and it is therefore that at the very outset it describes 64 Vairājādi temples (Ch. 49) out of which, 45, as we know from Agni Purāna, were also names of the Lāta temples. Moreover, it later on describes many other classifications of temples including the Nāgara, Vairāta, Drāvida and the Bhūmija[1] but does not refer to the Lāta temples at all.

The list of authorities in the Agni Purāna (as well as the Matsyapurāna list) again supplies valuable information. The names in the Agni Purāna list which are known to us include those of writers of both the schools Thus the works of (1) Hayaśirṣa and (2) Garga belonged to the Nāgara school and (1) Prahlāda (2) Nārada (3) Viśva (4) Atri and (5) Vasishtha and perhaps also Nārāyaṇa, as we have discussed, were of the Drāviḍa school Śaunaka is not well known to us. Thus we find that the Matsyapurāna and the Agni Purāna, though primarily works of North India,

[1] Samarāṅgana S —Chapters 55-62.

at least in matters of Vāstuvidyā, had also consulted the works of the Drāvida school and also perhaps those of other schools. This factor indicates a period in which, in spite of the existence of the different schools of Vāstuvidyā, Indians did not make any invidious distinction between them. The authorities of one school were respected as such by those of the other schools; such as, Viśvakarmā was regarded both by the North Indian and South Indian Schools. They copied one another. It was a period when the Purānas and other North Indian religious works and the Āgamas of the south were being followed and respected in all parts of India. The Vāstuvidyā of one school was also imitated by the other. This explains similarity of some of the South Indian works with those of Northern India in many respects (See Table of Temples). We also find therefore temples of North Indian order being built in the South and Vice Versa. There might have been a period when distinction could not be made between the North Indian and South Indian architecture.

It was in this period when the Pañcharātra Tantra works were rising, that some of the Āgamas of South India were composed and Vāstuvidyā was inserted in them. The available Āgama works, mostly in Mss , are the Kāmikāgama, the Suprabhedāgama, Karanāgama, Vaikhānasāgama, Aṁśubhedāgama and so on Dr. Acharya mentions the names of 28 Āgamas[1] and has summarised some of them. Of these, it has been discussed already, the Aṁśubheda Āgama of Kāśyapa, as available nowadays, is undoubtedly a very late work (see also Ch. XVI). The Atri Saṃhitā (an Āgama of the Vaikhānasa school) or the Samūrtārchanādhikaraṇam, as published, is a work of the Southern school. Though a late work, as it is acquainted with 96 kinds of temples and houses, it contains early traditions of the southern School. It does not know the division, noticed in other southern works, of temples into the Nāgara,

[1] Acharya—Indian Architecture, p. 23 f n. Also Iśāna-Ś-G-Paddhati, Part III, Paṭala I, verses 49 ff.

Drāviḍa and Vesara schools. Temples of 4 sides, 8 sides, 16 sides or round ones are called in it Brahmmacchanda. Viṣṇucchanda, Indracchanda, and Rudracchanda respectively. The endings 'Kānta' after Brahmā, Viṣṇu etc. which are found in later works, are also absent in it. It, further, does not classify temples according to the number of storeys, but in a general way. It is acquainted with temples of 12 storeys only.

The Āgamas generally represent an early stage of the Vāstuvidyā of the Southern school as is evident from references to Āgamas in the Nāṭyaśāstra of Bharata, perhaps of the 3rd century A.D. But from the summary of the Kāmikāgama we find that this Āgama is acquainted with the later meanings of the words 'Nāgara', 'Drāvida' and 'Vesara' (see Chap. XIV). This is true also of the Suprabhedāgama. This clearly indicates the origin of these Āgamas in a period when the real significance of these terms were forgotten by the people of the south Though, according to Acharya, the Kāmikāgama contains 20 names of Śālās which, he thinks are equivalent to those of the Prāsādas or temples, the contents of the Kāmikāgama indicate that it has other chapters (from Ch. 58) dealing with the storeyed buildings or temples This indicates that the Āgamas followed the system of classification of temples as found in the extant Śilpa works of South India but were also similar in some respects with the Northern texts (Bṛihat Saṃhitā etc.)[1] The division of Śālās and their names in this work should be compared with those of the Śālās in the Mayamatam and the Śilparatnam with which they have got similarity in some respects but not in all (see Table 7). The Karanāgama and the Sūprabhedāgama do not deal

[1] Suprabheda Patala 30—refers to the uppermost part of the temples as the Sthūpi and not Āmalasāraka This is a further proof that these works dealt with Dravidian temples.

"Anyasarvam Samproktam Sthūpyantam Kārayed-Buddhah"

The Kāmikāgama, however, is the only South Indian Āgama which clearly refers to the characteristics of the Nāgara, Drāviḍa, Vairāṭa and Kalinga temples (See Kramrisch—Hindu Temples—text of Kāmikāgama).

with these storeyed buildings (as Acharya's contents of these books indicate), but with classification of temples in a general way. The names of temples in the Suprabhedāgama are twelve (not 10 as Acharya thinks) and are similar to those found in the Śilparatnam and the Ī-Ś-G. Paddhati. But the descriptions of these temples therein refer to the fact that these temples could be twelve-storeyed[1]. Thus the Suprabhedāgama also knew such kind of classifications according to storeys. In various other respects too (specially the method of treatment) the contents of these Āgamas indicate that they were more allied to the extant treatises on South Indian architecture than with those of the north and must have been works of a late period (i.e. after 6th century A.D.).

The most valuable of the Āgamas that have been printed is the Vaikhānasāgama of Marīci. The date of this book also must have been later than some of the known Āgamas —(perhaps the Suprabhedāgama and Karaṇāgama). It not only knew the classification of structures into Nāgara, Drāvida and Vesara, but also the 96 kinds of temples (as in the Atri Saṃhitā and the Ī-Ś-G-D-Paddhati). It divided the temples according to their storeys, as found in the Southern Śilpa Texts (in addition to the general classifications found in some Āgamas). Two strong reasons for assigning a late date to its composition are that—(1) It refers to seven Prākāras (walls) around the temples (Southern texts refer to five only; see Mayamatam etc). (2) According to it, the Gopuram could have 12 storeys (other early southern texts refer only to seven-storeyed Gopurams).

It was also later than the work of a Bhrigu as it itself refers to Bhṛigu's name (Patala VII) ("Eteṣāmanuktam Sarvaṃ Bhṛigūktavidhinā Kārayet"). It was perhaps earlier than the Atri Saṃhitā, as the latter work refers to the authority of a Marīci (Atri Saṃhitā I. 40). The Vaikhānasāgama may be supposed to have been written between

[1] Ā Dvādaśatalādevam Bhūmān Prakalpayet (Suprabheda Patala 30).

the 7th and 9th century A.D. after the rise of the Pañcharātra school and near about the time of the Ī-Ś-G-D-Paddhati.

But at the same time, several factors also lead me to infer that some of the Āgamas contained the earliest Indian texts of the South I have noticed that the religious works while dealing with Vāstuvidyā always try to preserve the earliest traditions, because as they are connected with religion, they think it proper, according to the Indian traditional method of conservatism, to cling to the earliest religious traditions and deviation was regarded as a sacrilege. This is true also regarding the northern texts. The Matsyapurāṇa deals with the traditional 20 types of temples and this has been copied in all later religious works which contain these subjects (such as the Haribhakti Vilāsa). This is supported by the fact, that the classification of temples found in the Suprabhedāgama was followed later on by not only the Śilparatnam but also the Ī-Ś-G-Paddhati and Atri Saṃhitā and other religious works. They did not follow the Mayamatam classification, but the religious texts of the Āgamas (See Table IC). This classification, moreover, has got a greater similarity with that found in the northern texts and hence, I think, was an earlier sort of classification This also explains how the Tantra-Samuccaya being a late work followed earlier traditions (see Chap. XIV). I think, of these the Kāmikāgama is a late work as it confuses Prāsādas with Śālās and does not contain the early form of temple classification But Utpala (9/10th century) refers to the Kāmikāgama

The Suprabhedāgama prescribes only 12 storeys to temples which also, according to me, indicates an early stage of South Indian architecture and the Vāstuvidyā of that school (see Chap. on classification of temples). The Vāstuvidyā contained in the Āgamas, therefore, is of a very early period of the Dravidian Vāstuvidyā, when an attempt was going on to reconcile the Dravidian architecture with the tradition of the North Indian Vāstuvidyā[1]. I think

[1] I do not think that the Āgamas copied the 'Mānasāra' as Acharya contends. They agree to a great extent with the Northern texts and the Mayamatam, rather than with the Mānasāra which is undoubtedly a late work.

this period lay between the 6th century A.D. (after the Bṛhat Saṃhitā and the origin of the Dravidian style) and the 11th century (the time of Samarāngaṇa). The Dravidian architecture was growing and the South Indian Vāstuvidyā was also assuming a new form, different from the original texts of Maya, Nagnajit, Nārada and Parāśara etc., the natures of which are still unknown to us.

We thus reach a stage or period when some of the early works on Vāstuvidyā of the Drāviḍa (Southern) school were rewritten, and several North Indian works also were perhaps re-edited in the South in a modified form, making them suitable to the developed state of architecture that had grown up in the Deccan, or to give an Aryan garb to the South Indian architecture We know that the earliest of the extant temples of the Dravidian style could not have been built long before the 6th century A.D Though prototypes of these buildings might have existed, it has been generally said that the Dravidian style of architecture had grown up in the 6th century A.D. We have shown that the Drāvida school of Vāstuvidyā existed from a very early time (Before 4th or 6th century A D). We have, however, now no means of knowing the nature of the buildings of South India constructed according to the style prescribed in those early Drāvida Śilpaśāstras (See Ch. XV). For reasons suggested later on (See Chap XXVIII), it might be, that the Dravidian style underwent a great change about the 6th century A D. which resulted in the construction of temples in what we now know as the Dravidian order[1]. It was in such a transitional period that the earliest works on Drāviḍa Śilpaśāstras and some works of Northern School also were rewritten in the South.

The Manasāra, therefore might have been indebted to the Āgamas, rather than vice versa In fact, all these works are based on earlier original works of Vāstu, as shown before.

[1] Was it due to the 'Pallavas' ? They were intruders in the Deccan and their art may be regarded as marking a departure from the earliest South Indian style Of course, it might have followed some earlier models.

Such a supposition has to be made on account of the following reasons·

(1) There existed a Drāvida school of architecture before the 6th century A.D. (before Varāhamihira), but its nature is unknown. No extant buildings may be taken as specimens of that style.

(2) What now we know as the Dravidian style originated not very much earlier than the 6th century A.D.

(3) There were South Indian Vāstu texts (which perhaps survive in the Āgamas) with which the extant works like the Mayamatam etc. do not thoroughly agree.

(4) One of the earliest extant work on South Indian Vāstuvidyā the Mayamatam, is not perhaps the original work of the author mentioned in the Matsyapurāna as Maya. The quotation from Maya's works in the commentary of Bhattotpala has not been found in the extant Mayamatam. Brihat Samhitā's reference to Maya (Ch 56. 29) regarding size of a 'Bhūmi' or storey is also not found in the Mayamatam which prescribes no fixed size but mentions many alteranatives, according to number of the storey (Ch on Bhūlambavidhāna). The chapter on 'Vajrasamghātā' as mentioned by Varāhamihira (Br Sam. 57. 8) has also not been traced. The large varieties of temples, pillars, pedestals and bases also indicate a late period. Dr. Acharya also thinks that the Mayamatam is not a very early work This is, however, as shown by me one of the earliest of the extant South Indian works and this must have been consulted by the later South Indian works. So there was another earlier work of Maya of which the Mayamatam is a later compilation perhaps by Ganmāchārya. The original work of Śukra who was undoubtedly also a very ancient writer on Vāstuvidyā has not been found. The Śukranīti appears to be a later compilation.· Nor is the work of Agastya found, except in the form of later recensions (see 'Age of Mānasāra').

(5) The extant South Indian treatises treat with an architectural style which really may be identified with that of

the extant South Indian temples of the Dravidian style in a very developed form. The extant texts therefore must have arisen in a late period, perhaps after the Bṛihat Saṃhitā and before the Samarāṅgaṇa (6th to 11th century) and some still later.

(6) Another point to notice in this connection has been overlooked by scholars. The Mayamatam and also the Mānasāra, deal with classification of buildings in only one way viz. according to their storeys (of course some other minor kinds of classifications are there) and hence devote a separate chapter on Bhūmi or Bhūlamba-vidhāna, in which are laid down the height, length and breadth of buildings of one to twelve storeys. This shows how the division into storeys was the most important to these works. But the Śilparatnam (which knows the work of Maya) refers to the Bhūmilambavidhāna but deals with the classification of buildings in two places. First it has described, in one chapter (Ch. 16) entitled 'Prāsādalakshana' various matters regarding Prāsādas, their measurement, classes or varieties (Nāgarādi), Alpa Prāsāda, Mahāprāsāda and names of Mahāprāsādas. It is in this chapter that Prāsādas (temples) have been divided into 20 and 32 classes with different names which I have shown below (Ch. XV), were similar to the classifications found in Northern texts. Some of the Āgamas also follow this method (Karanāgama). Another division, according to storeys, has been dealt with separately in the Śilparatna in Ch. 37 which is called 'Śāntikādiniyama' i.e. rules regarding houses of Śāntika, Paushṭika, Jayada, Adbhuta and Sārvakāmika classes (a division of houses according to height). It is not mentioned therein if they were classifications of temples (Prāsāda) or all houses in general. These Śāntikādi houses are also dealt with in the Mānasāra in Ch. XI and in the Mayamatam in Ch. 19. It is of these Śāntikādi houses that both the Mānasāra and the Māyamātam describe the classifications and the names in details in various chapters (Mānasāra, Ch. XIX to XXX and the Mayamatam, Ch. XIX to XXII). The Mānàsāra calls these chapters

'Vimānavidhāna', Ekabhūmi-vidhāna and so on. Neither inthis work nor in the Mayamatam (as in the Śilparatnam) these divisions are referred to as classifications of 'Prāsādas' (temples), though in a previous chapter (Chap. X on Bhūlamba) temples are said to have many synonyms among which the Mānasāra does not refer to 'Prāsada', but to Harmmya. In the Mayamatam the word 'Prāsāda' has been used as a synonym of Vimāna, Harmmya etc. (Ch. XIX, 10-12). The Mānasāra in Chapter III, however, refers to 'Prāsāda' as equivalent to Harmmya. The point to note is that these works identified 'Prāsāda' with 'Harmmya' and 'Vimāna' and other words indicating temples But in chapters on classification of temples, whereas the northern texts invariably use the word 'Prāsāda', the Mānasāra, Mayamatam, Śilparatnam etc in those chapters do not mention the word at all, but refer to 'Vimāna' or 'Harmmya' The identification of Prāsāda with Harmmya, Vimāna, Mandira etc. arose in later periods. Originally these different words indicated different forms of temples or palaces, (see also Ch. XXVI). Curiously enough, the chapters in the Mayamatam and the Mānasāra on 'Residential houses (śālās)' direct that the śālās should be decorated like a 'Prāsāda' (Maya, Ch 26 21, 28, Mānasāra 35. 9). Here the word 'Prāsāda' is used in a technical sense, to mean a particular type of house and it is only in these chapters that the word 'Prāsāda' has been used by the works of this school. The want of classification of 'Prāsāda' (in its original sense) in these two books and its occurrance in other South Indian works like the Śilparatnam, Ī-Ś-G-devapaddhati (also Kāśyapaśilpam) and several Āgamas (the Vaikhānasa Āgama) on one hand and in all the northern texts on the other, has convinced me that the Śilparatnam, I-Ś-G-Paddhati (which among themselves are also similar in many other respects, as shown before) and the Āgamas were following an earlier tradition regarding classification of buildings and that the Mānasāra and the Mayamatam follow the tradition of a period when all South Indian

temples were built in the "Dravidian Style" as we find them in the surviving specimens.

I may further suggest that this later classification, according to storeys, was originally of a particular class of buildings of South India, the Vimānas, and not of Prāsādas which were the temples of the Northern Style. The word 'Śālā' in Āgamas cannot be equivalent to 'Prāsāda' as Dr. Acharya has taken it to be (p. 118—'Indian Architecture)'. 'Śālā', meant a residential house and differed in shape from the Prāsādas.

The system of classification of temples in the published text of the Mayamatam therefore indicates that the work is a later recension of the original work of a Maya which was very old, and the new recension was done to fit the architectural style which prevailed in the Deccan after the 6th century A.D. The Āgamas, the Śilparatnam and the Ī-Ś-G-Paddhati, though later works, continued to hand over the earlier traditions, in some cases along with the newer ones. The Kāśyapaśilpa being a still later work, however, took 'Vimāna' and 'Prāsāda' as equivalent words.

The six grounds mentioned above, therefore, lead to the conclusions that there were many earlier works on Vāstuvidyā in South India; that the extant works deal with the style that arose after the 6th century A D. and that many of them are later recensions of the earlier works of the Drāviḍa school. That several North Indian works were also re-edited in the Deccan is apparent from what has been said of the 'Viśvakarmāśilpa', Kāśyapa's available works and so on (See Ch. X). Some of these South Indian recensions of the Northern works (such as of Kāśyapa) must have been still later works, as they refer to sixteen storeyed temples. They could not have been written before the 10th century, perhaps after the 11th, as the Samarāṅgaṇa refers only to twelve-storeyed Drāvida temples. Moreover, the Kāśyapa's northern recension must have existed up till the middle of the 9th century, as it is found quoted in Bhoṭṭotpala's commentary. The South Indian recension must have been compiled after the 9th century. Kāśyapa's

work was, however, extant before the 15th century, as is known from references to it in the Śilparatnam. The date of the Mānasāra is discussed in detail in another chapter.

Similar to the South Indian Vāstuvidyā, it must be said, did the North Indian treatises on architecture undergo innumerable recensions As has been shown, Viśvakarmā's original work is not available to us. The extant works ascribed to him are later recensions. That such recensions were necessary in all parts of India may be inferred from the fact that as architecture developed in India, new matters describing this developed state of architecture had to be incorporated in the texts on Vāstu Indian architecture was not stagnant, nor could the works on Vāstu be so. But we think that old traditions and principles were preserved as much as possible in these new recensions Though strict rules were laid down in the Śāstras, it always gave freedom to the architects. They could do यथारुचि That freedom gradually helped architecture to grow from age to age. Another motive of the South Indians in re-editing Northern works and even accepting Viśvakarmā as an authority might be the attempt to Aryanise the Dravidian architecture. With this may be compared the name Nāgara being applied to South Indian towns (Acharya, p. 181) and temples.

Something has already been said of the Lāta school of Vāstuvidyā. The Agni Purāna, the Hayaśīrṣapañcharātram and the Aparājitapracchā refer to it I have already shown that the Samarāngana Sūtradhāra was perhaps mainly a work of the Lāta school The first classification of temples made in it contains many names quite different from those found in other works, though the general system of dividing them into 5 classes according to shape (Round, Square, Rectangular, Oval or Octagonal) has been followed. Other grounds for this belief have been discussed below (Ch. XV). The similarity however, of some of these names with those in the Agni Purāna proves the statement of the Purāṇa that the "Lāṭa temples bear the same names"

(though not exactly). What were the characteristics of this earlier period may be guessed from the Hayaśīrṣa-pañcharātram (Ch. 18). We give a tentative translation of the verses from the Ms.:

"The Lāṭa temples are similar to the Nāgaras but they differ in the 'Karma' (construction). Their 'Masuraka' (pedastals) and Kapotaka (the moulding) are square (Chaturasra)". The distinctive features are not clear. This is another example of authors looking on other schools as differing only in the shape of structures, as Dravidian authors later on did in defining the Nāgara, Drāviḍa and Vesara structures. The original number of temples in the Lāṭa order might have been 45, as told in the Agni Purāṇa; but by the 11th century it had reached 64, as is evident from the Sama Sūtradhāra. The Aparājitapracchā not referring to the Lāṭa school also thus appears to be a work of that school like the Samarāṅgana.

The other known school was the Vavāṭi or Vairāṭi. The temples of this order, 12 in number, are found described in the Samarang. S. (Ch. 64) and referred to in the Aparājitapracchā. The Haya. Pan. also refers to it and describes the characteristics in the following way (Ch. 18). "Their 'Masuraka' (bases) and 'Kapotaka' should be 'looking upwards' (Urddhvamukha). The 'Jaṅghā' and the Śukanāsikā' should have slender pillars." The other details are not clear[1]. The Kāmīkāgama refers to three stūpikās of Varāṭa temples; thus showing that Varāṭa temples were allied to Dravidian ones.

It was after the 6th century A.D., therefore, that Indian architectural treatises of all schools became further developed and all extant books may be said to have practically belonged to this period. Indian temples, most curiously, of the pre-fourth century A.D. have not been discovered yet. We may therefore guess that it was with the growth of actual

[1] Do these refer to the mouldings of bases and cornices having a curvilinear shape upwards ? S. Kramrisch in 'Hindu Temples' locates the Barāṭa temples in Berar and says that "the descriptions would more closely fit the temples known as Chalukyan" (Also K. Aiyangar, J.I.S.O.A., Vol. 11, p. 23).

architecture that the new treatises on this subject were also written and studied. The more developed the matters discussed in a work, the later must be the date of composition of that book. We may similarly guess that the early works on Vāstu also must, therefore, indicate the existence of earlier specimens of Indian architecture. Both these specimens and the works on Vāstu of that early period (pre-sixth or pre-fourth century A.D.) are now lost to us.

CHAPTER XIV

CLASSIFICATION OF INDIAN TEMPLES

MUCH has been written on the Indian temples, their main styles and classifications. Fergusson divided them into the Indo-Aryan, the Dravidian and the Chalukyan; and modern Indian writers following the Indian Śilpaśāstras recognize only three styles—the Drāvida, the Nāgara and the Vesara. Some scholars, like Dr P. K. Acharya, further think that all texts regarding the classifications of temples found in the Śilpaśāstras agree among themselves and that the Mānasāra is the standard work which contains these classifications which were later on followed by other Indian Śilpaśāstras[1]. We shall examine these divisions one by one and shall later on show that Acharya's contention has no foundation.

Firstly, regarding the classification of Fergusson. He has been criticised by scholars for the various names given by him to the various styles Coomaraswamy says that the classification of Fergusson is only unsatisfactory "on account of its ethnic-implications"[2]. The Dravidian temples, moreover, have been regarded by many scholars to have originated from earlier structures (the tumuli) of South India[3] or Buddhistic caves of the Deccan or even from several North Indian prototypes of the Gupta period. Even if these theories may not be accepted, the Dravidian or the Chalukyan temples (in fact, all Indian buildings) are based on certain fundamental principles which are Indo-Aryan in character. These we may gather from the

[1] 'Indian Architecture' by P K. Acharya, pages 110-120, 160-169.

[2] History of Indian and Indonesian Art, p 107. For further discussion see Chapter XXVI.

[3] Longhurst—Report Arch. Survey, South, circle 1916-1917, Part II, p. 28 ff.

Venkata Ramannaya—Origin of South Indian Temple

Saraswati—Indian Culture, Vol. VIII. For further discussion, see Chapter XXVI.

study of the Indian Vāstusāstras. Havell also criticised Fergusson's classifications on these grounds, and certainly there is much truth in his criticism. I have collected these principles in another place (Chapter XXI). The Chalukyan style again is only a development of the Dravidian style.

Fergusson's classification, however, is partially correct from the fact that even ancient Indians, the authors of the Vāstuśāstras, knew different classes (order or style) of buildings called Nāgara, Drāvida, Lāta and Vairāta etc. based on geographical divisions. In place of Indo-Aryan, they put Nāgara and for the Dravidian, Drāvida and for the Chalukyan, according to some, was recognised the Vesara style It is therefore that modern writers classified Indian buildings according to classifications found in the Śilpaśāstras into the Nāgara, Drāvida and the Vesara[1]

But this classification also has been condemned by scholars. Coomaraswamy[2] says that this classification is unsatisfactory "in so far as it partly involves a definition by ground plan which does not altogether fit the facts" Some scholars, however, say that these divisions are not simply based on ground plan, but also on historical Geography[3] This is certainly corroborated by some of the Śilpaśāstras They are also based on not only ground plan but also the characteristics of the Śikharas and other features[4] But many scholars have condemned this kind of division on other grounds and that quite rightly As Mr. Saraswati says 'with regard to the evidence of monuments the three styles can be resolved ultimately into two—the Nāgara and the Drāvida"[5]. Moreover, "the features of the Nāgara plan is so very general and common that it is difficult to consider it as a sure and distinctive cognisance of a particular style".

[1] For classification according to religious basis see Chapter XXVI.

[2] Coomaraswamy, HIIA, p 107.

[3] Acharya—Indian Architecture, p. 130-32

[4] All texts in the published works—Āgamas, Mānasāra, Mayamatam, Kaśyapa's works, Śilparatnam, the Īśānaśiva-gurudeva-Paddhati etc Also Indian Culture, Vol VI, p. 21 ff.

[5] Indian Culture, VIII (2,3), p 184.

The descriptions of the 'Drāviḍa' temples also, according to him, are "too meagre altogether to fit the facts"[1]. The Geographical (regional) definition of the styles, according to him, came after the Gupta period, as even in the 7th century, the two distinct types occur side by side at Aihole and Pattadakal[2]. Besides these difficulties, others are found, if one goes to verify the texts with reference to the existing monuments. The Dravidian temples are not hexagonal or octagonal in ground plan. The Śilpa texts enjoin different deities to be enshrined in these three different temples. But one scholar has been thrown to a great difficulty in finding that the Naṭarāja at Chidambaram is installed in a Nāgara (square) shrine, whereas according to the Kāśyapiya, Nṛttyamūrtis are to be placed in Drāvida shrines[3]. Many such difficulties are really to be found if we accept the division of temples into the three classes Nāgara, Drāvida, and Vesara, as has been done by the Śilpaśāstras referred to above.

These difficulties, however, may be overcome if we consider the following suggestions.

At the very outset, it should be noted that this division of Indian buildings into Nāgara, Drāvida and Vesara as mentioned in the Southern texts was a very late innovation of the writers on Indian Vāstuvidyā and that the southern texts mentioning these divisions were not very sure of their significance. These points will be made clear below.

The Viśvakarmaprakāśa, the Bṛhat Samhitā, the Matsyapurāna, the Agni Purāna, the Samarāṅgana Sūtradhāra and many such other works classify temples

[1] Ibid, p. 188

[2] Ibid, pp. 189-90.

[3] K. R. Pisharoti—Indian Culture, Vol VI, p 31. His attempt (p. 37, Ibid) to solve this problem by saying that the difference in these three styles are only with reference to the shape of the Śikhara (roof of the shrine) is (Śikhara is always the guiding factor) contradicted by the texts themselves मूलाद्याशिखरक्षिप्तं षडस्राष्टाश्रवृत्तं द्राविडम (Śilpāratna, p. 84) 'Mulāt' indicates even the portion below the roof.

into various kinds, of which some were rectangular, some octagonal and others were circular. It is also known from the study of these books that these temples are of the Nāgara style or order. It is therefore quite clear that according to Śilpa texts, only square temples were not called Nāgara temples Similarly we may say, circular ones were not Vesara temples and only six-sided or octagonal temples were not the Drāviḍa temples. Nāgara temples therefore, are not necessarily square in shape; or the Drāviḍa ones octagonal and Vesara temples circular The classification of temples into Nāgara, Drāvida and Vesara therefore really was not originally based on only the shape of the temples but on stylistic differences according to localities i e. they were really Geographical divisions.

This significance of these divisions was later on confused by later writers on Vāstuśāstra of the Deccan or South India The texts mentioned in the last paragraph are, according to me, the earliest texts on Vāstuvidyā and represent the North Indian school of Vāstu works[1]. It was only in the works of the South Indian writers on Vāstu such as Maya, Kāśyapa and some other writers mentioned before that these terms Drāvida, Nāgara and Vesara are found together. Moreover, no North Indian texts know the term 'Vesara', though they mention the first two

This will be supported even from the discussion regarding the identification of these three classes of buildings on Geographical basis From references in the Mānasāra, Mayamatam and similar Śilpa works (of Southern School), modern writers like Dr Acharya[2] and others came to the conclusion that the Nāgara style corresponds to the Northern or Indo-Aryan style, the Drāvida style to the Dravidian or Dravidian-Chalukyan and the Vesara style to the Orissan or Chalukyan (as according to Coomaraswamy). Dr. Acharya further adds that the Vesara admits of two other

[1] I pointed out these two schools of Indian Vāstuśāstras in the paper 'Mānasāra and other treatises of Indian Architecture' read by me in the Oriental Conference at Patna, 1930. (see Proceedings, Oriental Conference 1930, p LX).
[2] Indian Architecture, pp 176-81

branches—the Āndhra and the Kalinga[1]. He therefore thinks the Vesara style to be that of Kalinga or Orissa also. The South Indian texts, however, indicate that the Vesara style was undoubtedly prevalent to the South of the Vindhyās. The Holal Inscription and the Sorab Taluq Inscription referred to by Acharya[2] further divide Indian architectural style into Nāgara, Drāviḍa, Vesara and Kalinga, and Nāgara, Drāviḍa and Bhūmija respectively. Even if the Bhūmija style be taken as identical with the Vesara style, the Kalinga style, mentioned separately from the Vesara in the first inscription clearly indicates that we cannot identify the Vesara style with that of Orissa. Mr. Saraswati is therefore perhaps right[3] in thinking that Orissa temples belong to the Nāgara order. Even amongst the ancient South Indian writers there is found much confusion as to the real place where Vesara and Drāviḍa buildings existed[4].

From what has been stated above I come to the conclusion that to the writers of South India, the meaning of these three terms was not clear at all, the Vesara style was the most confusing one and even if at first, Vesara meant a geographical and stylistic division of temples, later on it meant to them a classification based on the form of structures. So did the two other words 'Nāgara' and Drāviḍa meant to them only two 'classes' of structures and not two separate "styles or order" of architecture. This has been made clear by the Holal inscription which says that these terms indicated four "classes" of structures and not styles[5]. This was the real meaning of these terms as understood by the people of the south in a late period. But as I have already said above, there is no doubt that the two terms Nāgara

[1] Indian Architecture, p. 176.
[2] Do, p. 176, footnote.
[3] Indian Culture, VIII (2 and 3), p. 185.
[4] K. P. Pisharoti (Indian Culture, VI, p. 29 ff). The fact that this scholar says that "typical examples of these various styles in their pure form except the Drāviḍa style are found in plenty in all parts of Kerala" (p. 37, Ibid) also indicates that these divisions were really followed with regard to what we call Dravidian temples.
[5] Acharya, 'Indian Architecture', p. 130, f.n. 5.

and 'Drāviḍa' really meant two separate orders of Indian architecture. The difficulty is about the word 'Vesara', which I think was not a style but indicated really the shape of a structure being round (similar to the ring-like ornament 'Vesara' of the nose)[1]. This may also explain and remove the difficulties about the location of the Vesara style of buildings. If it was a style based on Geographical division it was of very late origin, as really, the Chalukyan style of architecture did not fully develop before the 11th century.

I, therefore, come to the conclusion that the earliest known orders of Indian architecture were only two—the Nāgara (of North India) and the Drāvida (of the Deccan and the South)[2] and that it is very doubtful if Vesara was ever really the name of a distinct Indian style of architecture (even if so it arose in a very late period), There are other names, besides Nāgara and Drāvida, to indicate the different orders of Indian architecture (See Chapter XV)

This is further apparent from one more fact Though the terms Nāgara, Drāvida and Vesara, as defined in the Southern texts except the Kāmikāgama, do not at all give a clear idea of the real characteristic of the North Indian and 'Dravidian' temples, as we know from the real specimens, there is no doubt to me that the works containing these three terms deal only with the 'Dravidian' style of architecture As we all know, the main characteristics of the Dravidian temples are the square temple surmounted by a Śikhara which are divided into compartment—like storeys, on the top of which are two kinds of crowning pieces, one like that on the 'Shore' temple at Mamallapuram and the other like the one on the Ganeśa Ratha of that place. All the texts which I have called the Deccanese or

[1] The terms Nāgara, Drāvida, and Vesara therefore meant, to South Indian architects, three varieties of buildings of South India built of different shapes, and not three separate styles viz of North India, of the Deccan and of South India Vesara means also a 'mule'. Does the word refer therefore to a hybrid style?

[2] Mr Saraswati comes to the same conclusion from a different point of view' (Indian Culture)

South Indian describe temple-divisions on the basis of the storeys in the Śikharas which might be 12 in number according to some (undoubtedly the earlier authors) or upto 17 according to other writers. The crowning piece is called the 'Sthūpi' with the Kalasa. The two Dravidian temples referred to above will clearly indicate that such classes of buildings have been really described in these South Indian texts The Northern texts all describe the crowning piece of the temples as an 'Āmalaka' or 'Amalasāra' and all temples called Indo-Aryan by Fergusson, in fact all northern temples and even several temples of the South[1], contain a fluted member on the top and also in the corners, looking like the Āmalaka fruit. These buildings were really built in the Nāgara style or order. The South Indian texts, so far I know, never refer to the 'Āmalaka' (except once in the Kāmikāgama and perhaps once in the Mayamatam) but always to the 'Sthūpi'—the two quite distinctive features of the Northern and the Southern styles or orders of the Indian temples[2]. The authors of South Indian texts must have been aware of these two styles but they generally do not refer to it when they divide temples into the Nāgara and Drāviḍa The Nāgara structures, as described in the Śilparatnam[3] and similar works, do not at all appear to be anything like the temples of the Northern style That shows that these Nāgara structures were only a variety of the 'Dravidian' style with which only these works are concerned.

But some of the Northern texts at least knew the real characteristics of the 'Southern' or Drāviḍa temples. The Samarāṅgaṇa Sūtradhāra contains a chapter on the various kinds of Drāvida temples[4] and most curiously, at the very beginning it is said that Drāvida temples may consist of

[1] Pattadakal temples

[2] See Chap. XVIII for further discussion on this topic.

[3] Śilparatnam, p 84. The Kāmikāgama of course describes a real Nāgara temple in chapter 49, but elsewhere refers to the Drāvida Nāgara, and Vesara temples, really as varieties of Dravidian temples.

[4] Samarāngaṇa Sūtradhāra, Ch. 61, Verse 1.

storeys upto 12 in number, and then these temples are classified according to their number of storeys, as has been exactly done by all the South Indian texts[1]. The Aparājitapracchā (a late compilation) also describes (Ch. 106-174) a purely Nāgara and a Drāvida temple which might be of upto 7 storeys At the same time, it was also acquainted with the Vesara kind of Chitrapatra and Chitrakanṭaka (Ch. 229), but not Vesara temples There is therefore no doubt that the South Indian Vāstu texts mostly deal only with the Dravidian temples and their Nāgara, Drāvida and Vesara do not refer to three distinct styles or orders of Indian architecture: but, for reasons now not clear, there was a confusion about the meaning of these words. This shows (1) that this division was a later growth and (2) these meant to them not three different styles of three different countries but three classes or varieties of the South Indian temples and various other structures like the Linga, Lingapītha etc This kind of division based on shape of structures was a later growth as will be evident from the discussion below about the various classifications of Indian buildings as known to the Indian Śilpaśāstras.

It might be that the names arose out of the remembrance of the earliest forms of Aryan and non-Aryan constructions respectively The Brāhmanas recommended square stupas for Devas and round ones for Asuras There was a time when the North Indian structures were square and those of the Dravidians circular In earliest days shape, therefore, was a criterion of difference between the two schools. But later on this criterion could not apply Is Vesara a later garb of the word Asura?

This is further evident from the fact that though the Mayamatam recognises these three divisions according to shape of the structures, in the classification of one-storeyed temple (Chap. 19) it says that the Vaijayanta building has round 'neck' (Grīvā) and 'head' (Mastaka). (Cf.

[1] The book also describes here 5 kinds of bases of temples as is invariably found in the South Indian Śilpa texts. Also cf. Hayaśirṣapañcharātra (Ch. 18).

Mānasāra-Achārya, p. 111). Similarly (Chap. 20), if a two-storeyed temple has octagonal 'Vedi', Kandhara, Śikhara and Ghaṭa, it is called 'Visṇukānta'. If Vedikā, Kandhara and Grīvā be oval (Āyatavṛitta), it is called Gāndhāra.

As mentioned before, the Mayamatam was, in classifying temples according to storeys, describing here the Dravidian temples. But some of the structures described above appear to be belonging to the 'Vesara' style (round Śikhara). We shall then have to say that here is being described a Vesara temple in the geographical sense and not a Drāvida one. But we may think that really a Vesara temple was being mentioned in the text. In that case, how could the oval temple (Gāndhāra) which according to scholars is a Vesara temple be described as belonging to the 'Gāndhāra class, the name indicating as if another class based on a geographical division is meant thereby? This may also be said about the descriptions, found in the Mānasāra, of the various classes of twelve-storeyed temples. Though these temples (of 12 storeys) were really Dravidian temples, the names given to them indicate as if each of them belongs to a different style of a different country in India. Dr. Acharya really says "These ten kinds are named after the historic places" (Dictionary, p 402) and he has further discussed many things regarding this division (Indian Architecture, p 173-75) But the question is that if the Mānasāra was acquainted with the twelve-storeyed temples of different places of India and was describing them here, why is it that in so doing it does not at all bring out the real characteristics of the temples of different places of India? The Mānasāra, therefore, was simply describing the various varieties of twelve-storeyed temples of the Dravidian style, the names of which had been taken from those of Indian countries. Similar is the case with the Gāndhāra temple mentioned above. The Mayamatam (XXII. 82) in describing the twelve-storeyed temples says that "Its head (Mastaka) may be four-sided, eight-sided, sixteen-sided or circular and has a stūpikā". Here the mention of differently shaped 'Mastaka' of temples does not indicate that they

belonged to different countries. The mention of the Stūpikā clearly shows that all these temples were of the Dravidian school. Square temples in these chapters do not refer to the real Nāgara temples but to varieties of the Dravidian temples. That custom arose, in the 10th century, of naming temples after those of places is known from the Samarāṅgana (Ch. 61) which mentions Drāvida and Puṇḍravardhana as names of temples, not obviously of Bengal or the Deccan. The Bhuvanapradīpa also refers to Drāviḍa, Barabhī and Kośali temples as varieties of Orissan temples. Thus the words Nāgara, Drāvida and Vesara in these texts do not refer to the different styles or orders of Indian temples, but merely to varieties of the Dravidian temples

The fact that these texts really ascribe the three classes of temples to different localities of India may be regarded as a clear proof of these three classes being based on Geographical factors But in later periods there was a confusion among the writers of these texts regarding their proper locality. The same doubt has also been felt by modern writers on this subject The only possible explanation for this is that these southern texts, in copying from earlier texts, put down these three names (two of which were certainly primarily based on geographical divisions of Indian architecture) along with older texts referring to their locations.

As has already been said, the Southern texts, as we find them now, were late compilations Therefore, though they copied many earlier matters of Indian architecture, they could not thoroughly reconcile those early texts with the advanced architecture of their own country. They remembered that Nāgara temples were square in a very early period and the Drāvida hexagonal or octagonal and the Vesara circular or oval, but as they were not concerned with the Nāgara or Vesara architecture, they did not care to describe the real characteristics of the Nāgara (of North India), or Vesara temples. As time went on, confusion arose in South India regarding the real characteristics of the Nāgara and also perhaps the Vesara temples. It was, therefore, that in a later period they differentiated these three

orders on the basis of their shape alone and at the same time remembered their localities. But as gradually Dravidian temples also assumed these various forms (as described in chapters on the one-storeyed or two-storeyed buildings and the like) these three names were also remembered; but the fact that they were not based on mere shape or localities (but in various ways) was totally forgotten and they were regarded as names of varieties of the Deccanese temples. It has therefore been said, at the very beginning, that these three terms, to the South Indian architects (though they originally meant stylistic orders based on geographical division) meant in later periods only varieties of the Dravidian temples and also other structures of the Deccan from the Vindhyas to the Cape Comorin. It is very difficult to say, however, at what age this confusion arose. The Atrisamhitā did not know these, but other Āgamas knew these terms and so did the other later texts. But I have shown elsewhere that the extant works were later recensions of older texts. The later authors confused the meaning of the terms—what indicated really separate orders were taken by them as only varieties of a structure, as Dr Acharya confused the different varieties of Deccanese pillars (See Chap. XIX) with different orders of the Indain pillars. The Kāmikāgama passage quoted by Acharya (Dictionary, p. 302) saying that a Vesara structure was fit only for the low class people also indicates that the 'Vesara' style did not belong to a country different from those occupied by the Nāgara and the Drāviḍa ones, but was a class of Dravidian structure of bad quality.

In a later period the confusion became greater and further attempts were made to make the descriptions of these three classes of structures fit the existing condtion of South Indian architecture. If we compare the various texts on this subject among themselves we may discover three stages of the development of these texts. (See Pisharoti, Indian Culture, Vol. VI).

(1) The earliest Āgama (Sūprabhedāgama), Mayamatam (Chap. XIX) (A) of Mr. Pisharoti and Tantra

Samuccaya—In which the Drāviḍa and Vesara buildings differ only as regards shape of the portions above the neck and only circular or octagonal shapes are mentioned respectively for Vesara and Drāvida. I have already shown that religious books follow the earliest texts. Mayamatam also is an early book and hence we notice least complications in this division, in these books.

(2) Kāmikāgama, (already suggested to be a later Āgama), Mayamatam Ch. XIX and (B) (which may be an interpolation in the later recension), Ī-S-G-Paddhati and Mānasāra—The first two know the early classification (as no. 1 above) but also add a variation in which, besides octagonal and circular shapes, other shapes, hexagonal, ellipsoidal and apsidal, are introduced The old version and the later forms are here reconciled by alternative descriptions

(3) The latest works—Kāśyapa, (proved before as a very late work) and Śilparatna—which in addition to the octagonal and circular shapes respectively of the two structures, say that this differentiation is laid down for such Vimānas which have no Kuṭa or Kostha. This factor is seen here for the first time. The later works (2 and 3) also ascribe to these divisions other qualities such as their being Satva, Rajas and Tamas; some Brāhman, other Vaiśya or Kshatriya, some fit for some Gods and others for other Gods. They are not found in earlier texts—Tantrasamuccaya (though a late work—a religious work and hence follows earliest system), Sūprabheda and Mayamatam, but found in those placed in (2) and (3). The various points of difference mentioned indicate many things except the characteristics which really distinguish the Nāgara and the Drāvida and structures of other orders in their real sense. The later works containing later forms must, therefore, have referred by these terms to nothing but the developed state of the South Indian structures. These three terms had altogether different meanings to the late South Indian architects from what they signified. Mr. Pisharoti also notices the later development of these classifications in the Kāmi-

kāgama and the Kaśyapa Śilpa. (Vol. VI, Indian Culture); this development, was certainly due to advancement of architecture in different localities of India, but this cannot explain how these works describing the Drāviḍa architecture included forms equally applicable to the Vesara, Nāgara and other structures.

Chapter XV

VARIOUS ORDERS OF INDIAN ARCHITECTURE

It has already been pointed out before that the authors of the Indian Śilpaśāstras really had an idea about the existence in India of various styles or orders of architecture. They divided these styles firstly into two—the style of Viśvakarmā and the Drāvida style[1]. But these two orders of Indian architecture later on gave rise to many others. According to me, the earliest Indian Vāstu-works knew of only two orders or styles, the school of Viśvakarmā and Maya Later on arose the two styles– Nāgara and the Drāvida This is known from the early texts (It was also known to the latest North Indian Śilpaśāstras, such as the Samarāṅgana). The Agni Purāna and the Hayaśirsa-pañcharātram refer to, in addition to these two orders, a third one named Lāta Mr. Saraswati has also discovered this name in the Aparājitapracchā[2] The Hayaśirsapañcharātram, the Samarāṅgana Sūtradhāra, the Kāmikāgama and Aparājitapracchā add to it a fourth one viz 'Varāta' The real word, may be Varāta though Varāta' is found by Mr. Saraswati in a Ms of the Aparājitapracchā[3] The Samarāngana and Aparājita P. further mention a fifth style called the 'Bhūmija', as the Sorab Taluk Inscription, mentioned by Acharya[4], does. The former work describes various other kinds of temples but (some perhaps of the

[1] Brihatsamhitā, Chap 56, Verse 29 refers to a school of Maya and Chapter 58, Verse 4 refers to the 'Drāvida' School

Agni Purāna (Cal Ed, Ch 104, Verse 22)

Hayaśirsapañcharātram (V R S, Ms Ch 19) cf also Samarāṅgaṇa Sūtradhāra.

[2] Indian Culture, VIII, p 183, f note.

[3] -Do- f notes. Both the Hayaśirṣa and the Samarāngana, however, read the word as 'Vavāta' or Varāti The editor of the Samarāngaṇa reads it in various ways but the last verse of the chapter reads it really as 'Vavāṭa'. (Samarāngana Sūtradhāra, Ch 64). Kramrisch identifies it with Barāḍ or Berar

[4] Samarāngana Sūtradhāra, Ch 65.

Lāṭa style, as shown already) does not clearly say if they belong to different styles of architecture or are but simply varieties of the same style. It, however, refers to two groups of the Nāgara temples, the names in one group being exactly similar to the names described in the early North Indian texts (See Table IA). Its knowledge of the Drāviḍa temples has already been mentioned. From all these references we may conclude that the earliest styles of Indian architecture were the Nāgara and the Drāviḍa. As time went on (exact age is difficult to surmise) and as Indian architecture developed in different localities, different local styles, with distinctive features, began to arise—the Lāṭa, Vairāṭa (Varāṭa), Bhūmija, Vesara, Kalinga, Andhra and perhaps several others mentioned in the Mānasāra when it describes the twelve-storeyed temples[1]. It was in such a late period that the South Indian architects confused the real significance of the terms 'Nāgara' and 'Drāvida' and 'Vesara' and took them to refer to only varieties of the same kind of structures viz. the Dravidian one The 'Vesara' might or might not originally refer to an order or style of architecture.

That the division of structures into Nāgara, Drāvida and Vesara on the basis of the shape of buildings (square or others) is a late system of classification is also evident from the fact that several North Indian texts also classified temples of the Nāgara and other North Indian styles on the basis of their being square, rectangular, octagonal, circular, or oval in shape; but they never refer to the 'Vesara' order. The number of such temples was 45 according to some of the texts[2] and 64 according to others[3]. This large number of

[1] Acharya, Indian Architecture, p 113 It is to be noticed that this list contains really names of different orders—Such as Drāviḍa, Virāta, Gurjaraka (may be Lāta), Kalinga and some other of later origin But as shown before the real meaning was lost to the Mānasāra

[2] Agni Purāṇa, ch. 104, verse 13.
Garuḍa Purāṇa, ch. 47, verses 19-34.
Samarāṅgana, ch. 49, verse 3 ff
Hayaśīrṣapañcharātra, ch. 12.

[3] Samarāṅgaṇa gives the following classifications:—
(1) Ruchakādi 64 (ch. 49).

temples indicate that it was in a late period when Indian architecture had further developed (number of varieties of temples had grown from 20 to 45) that a classification according to the shape of the structures was necessary. Classifications on other basis were later on introduced in India as found in the Samarāṅgaṇa[1]. The names of 11 temples in the "Bhūvanapraveśa" and those of 14/15 temples mentioned in the Bhūvanapradīpa (See Table IE), the Oriya Śilpa works, are similar to those of the Nāgara school of the early period. As discussed above, the Orissa style should, therefore, be included in the Nāgara architecture and not the Vesara one as Acharya thinks.

As we have traced the development of the various orders or classifications of temples in North India, we may do the same also of the South Indian buildings The method of classification, found in many South Indian texts, based on the number of storeys and the various varieties of each class (one-storeyed, two-storeyed, and so on) appears to me to be a later system The number of temples mentioned in some of these texts is 96 but 98 according to the Mānasāra The Mayamatam has described 44 temples but must have known more because it gives details only of temples having one to four storeys. Details of other storeyed temples have perhaps been wilfully left undescribed This large number of

(2) Meru-ādi 16 (ch 55
(3) Another Ruchakādi 64 (ch 56)
(4) Srīdharādi 50 (ch. 57) The heading of this chapter I think has been wrongly printed as Meru-Ādi Viṃśikānāmı It will be Srīdharādi Pañchāśatnāma, ch 57 Somewhere after p 87 should begin the chap 58 containing the next group
(5) Meru-Ādi 20 (ch 57 printed—should be ch. 58)
(6) Vimānādi 64 (ch 59)
(7) Śrīkuṭādi 36 (ch 60)
(8) Drāviḍa Prāsāda (ch 61-62)
(9) Mervādi 20 Nāgara (ch 63)
(10) Digbhadrādi 12 (Vāvāta) (ch 64)
(11) Bhūmija Prāsāda (ch 65)

[1] This increase in the number of varieties of buildings had perhaps taken place before Bhaṭṭotpala (9th century) who says that according to Hiraṇya-garbha there were 120 classes of buildings (not temples) The Vishnudharmmottaram refers to 100 kinds of temples (See Table IF).

temples described must indicate a late date for the introduction of this system of classification. This is evident from the fact that there was in South India an earlier sort of classification in which no consideration was taken of the storeys, but the structures were described in a general way[1]. This classification is found in the Āgamas, the Śilparatnam and the Iśānaśiva-Gurudeva-Paddhati[2]. These works knew also the classification according to storeys, but have also noted down the other sort of classification which was, I think, an earlier system. My reason for thinking this is that the names of buildings mentioned in this classification[3] are almost similar to the names of temples mentioned in the North Indian Śilpa texts. These are 32 in number. Moreover one thing to be noticed is that very few of these names end with the suffix 'Kānta' as do the names of temples found in the other South Indian classifications The later the classification, the names with the suffix 'Kānta' are larger in number. This will again be shown, when discussing the date of the Mānasāra[4]. These facts led me to think that the classification mentioned here must be an earlier system. This system might therefore be taken to indicate the forms of the South Indian temples[5] before the introduction of the 'Dravidian' style with its innumerable storeyed temples The smaller number of temples (32) might also indicate an earlier date[6] (See Table IC).

[1] See ch XIII

[2] The Atri Saṃhitā, and the Vaikhānasiva Kāśyapa Jñānakānda though southern works and refer to 96 temples, do not refer to the usual division of buildings into "Drāviḍa", Nāgara and Vesara, as other South Indian works do The names are similar in many respects to those in the Ī-Ś-G-Paddhati

[3] Sūprabhedāgama gives only 12 names (Acharya, 'Indian Architecture', p 118) The number is not 10 as Acharya thinks. I have found in V R S. MS copy 12 or 13 names.

Śilparatnam (ch. 16, verses 91-95)

Īśāna-Śiva-Gurudeva-Paddhati, Paṭala 28, verses 10 to 14 and Paṭala 29.

[4] Also see chap XIII.

[5] See chapter XXVI.

[6] The number of temples mentioned in a book is undoubtedly (though not invariably) a good criterion of the age of the book.

The Śilparatnam[1] and the Īsānaśiva-Gurudeva-Paddhati[2] also describe another kind of classification of temples into 20 varieties (Nalina, Pralīna etc.) which is also not found in the Mayamatam or the Mānasāra, but found only in some of the Āgamas and the Atri Saṃhitā This classification also might have been an earlier South Indian system. The number (20) is similar to that of the Nāgara temples In course of time there arose 96 kind of buildings in South India, including this 20 and 32 previously mentioned These buildings are described in the I-Ś-G-Paddhati. Though the Atri Samhitā refers to 96 kinds it really describes only about 82 varieties[3].

Then arose the general system of classification of the South Indian temples, according to number of storeys, which (98 in the Mānasāra) again is not the same in all the texts. The names of the temples differ in different texts, though they might have the same number of storeys The Silparatnam classification agrees with that of the Mayamatam, which two again differ from that found in the Mānasāra (See Table II) The Mānasāra, therefore, appears to have been unknown to the Mayamatam, and Acharya's contention that the Mayamatam was indebted to the Mānasāra, therefore, cannot be accepted Either the Mayamatam was following a different tradition or the Mānasāra was a much later work This later date of the Mānasāra (which will be discussed in detail below) is further suspected from the fact that whereas the Mayamatam definitely says that the number of storeys in the Gopurams could be only upto seven[4], the Mānasāra and other works described Gopurams upto seventeen storeyed ones[5] The Śilparatnam[6] and the Isānaśiva-Gurudeva-P[7] also say that Gopurams could have only seven storeys and not more. The Maya-

[1] Śilparatnam, ch 16, verses 87-90.
[2] I-Ś-G-Paddhati, Paṭala 28, verses 7-9
[3] Atri Saṃhitā, ch 7 40
[4] Mayamatam, ch 24, verse 124 and last verse
[5] Acharya—Indian Architecture, p 52.
[6] Śilparatna, ch. 41, verse 5
[7] I-Ś-G-Paddhati, Paṭala 35, verses 94-95.

matam, Śilparatnam etc. were therefore following an earlier tradition (though Śilparatnam was really a late work) than that followed by the Mānasāra which was a later book on architecture. So did the Kāśyapa Śilpa refer to sixteen-storeyed temples, unknown even to the Mānasāra.

We should also refer here to a classification of Indian paintings made in the Viṣṇudharmmottaram. Paintings according to it may be (1) Nāgara (secular); (2) Satya (sacred); (3) Vainika (lyrical) and (4) Miśra (mixed) (Coomaraswamy, J.O.A S., Sept. 1928, p. 265). Here the division does not evidently signify any distinction based on geographical reasons All these divisions were varieties of (North?) Indian paintings which were of the Nāgara class in general. The Visnudharmmottara is undoubtedly, as shown by me (Ch. XVI) a late compilation, though containing very early traditions. (See Chapter on Painting)

CHAPTER XVI

AGE OF VARIOUS FORMS OF CLASSIFICATIONS

TENTATIVE suggestions may now be made as to the probable dates or time limits of the various classifications of Indian buildings as found in the various Śilpaśāstras. This will also help us in noting further data of determining the dates of some of the known texts of the Indian Vāstu works, which has already been discussed in chapter XIII.

1 Classification of temples into 20 kinds found in the Purānas and allied works must have been prevalent in the 6th century A.D. i.e. the time of Varāhamihira But this must have originated long before this period Varāhamihira in compiling the chapters on Vāstuvidyā says that he had taken these matters from the works of his predecessors like Garga, Viśvakarmā and others including Manu[1] I have shown elsewhere that Garga's writings might have existed in India in the 2nd century B.C. and in any case since the 1st or 2nd century A.D. This division has been found also in the Matsya Purāna which according to many scholars was completed just at the beginning of the Gupta period. Thus we may guess that long before the Gupta period temples were divided into 20 classes, and temples with Śikharas of various shapes had already grown up in India The flat roof alone, therefore, cannot be taken as a characteristic of the Gupta temples, as Cunningham did The earliest temples of Northern India have been examined by Mr. Saraswati[2] who is of opinion that the Nāgara style emerges in its typical form and characteristics by the 8th century A.D. According to Dr Jayaswal, however, the Tigawa, the Nachna Kuthar and some other similar temples were of the pre-Gupta age, of the time of the Vākātākas or Bhāraśiva

[1] Bṛhat Saṃhitā, ch 65, verses 29-31.
[2] Indian Culture, VIII, p 184 and 186.

Nāgas from whom the Nāgara style originated. Whatever might have been the date of these temples, the facts stated above clearly indicate the existence of temples with 'Śikharas' long before the Gupta period. Gupta inscriptions also refer to Śikhara temples existing before the 5th century A.D The Sun temple at Mandasor erected in 437 A.D. by the silk-weavers of Guzerat clearly demonstrates that it was a towered temple (Fleet-Gupta Inscription, pp. 80-85). Unfortunately, however, we have no surviving specimens of pre-Gupta temples. The Gupta inscriptions call temples 'Prāsāda' which must have been spired structures. According to all texts, the Āmalaka at the top is an essential feature of the Nāgara temple. Yuan Chwang noticed such Āmalaka at the top of a Varanasi and a Bodh Gaya temple. Thus the Matsyapurāna, the Bṛihat Saṃhitā and actual specimens prove that the Nāgara towered temples must have originated long before the Gupta period, and quite likely in the 2nd century B.C. (See Chap. XXVIII).

In this period, in the Deccan also, these classifications of temples might have been known and followed in construction Even the late work Īśāna-Ś-G-Paddhati says 'Twenty kinds of temples were main ones" and mentions, among these twenty, several names some of which are similar to those in the northern texts. (See also chap. XXVI). But this is also certain that another traditionary method viz. that of the school of Maya' was running there side by side with the Northern traditions. In fact, in this period (or in any other period), no rule existed prohibiting the erection of a northern type of temple in South India or of a Southern temple being erected in the North. This may explain the existence of Nāgara type of temples side by side with Drāviḍa type of temples at Pattadakal and Aihole (in 7th century A.D.) and of Dravidian forms in the Gupta period at Nachna Kuthar, Bhumara or at Lad Khan[2].

[1] Bṛihat Saṃhitā, ch. 65, verse 29 and ch. 66.
[2] See also chapter XXVI and XXVII.

Several early writers on South Indian architecture might have been living in the pre-Gupta period and their names may be cited as the earliest authorities on South Indian texts. (See next para).

2. By the time of Varāhamihira i.e. 6th century A.D. the two styles—the Nāgara (North Indian) and the Drāviḍa (South Indian storeyed style) had been definitely established[1]. In fact the earliest known structures in the 'Dravidian' style all date from the 6th century A.D. (the Mahakuteswar temple at Pattadakal, Mamallapuram Rathas) though earlier examples might have existed From this time, therefore, Vāstu works dealing definitely with Dravidian buildings (with storeys and other peculiarities) were written in the Deccan and some of these works might have been mentioned in the Brihat Samhitā. These early writers may be called the writers of Vāstu Śāstra of the Maya School (the cause of giving this name I have discussed elsewhere) They were Brahmmā, Tvashtā, Maya, Mātanga, Bhrigu, Kāśyapa, Agastya, Śukra, Parāśara and perhaps Nagnajit Some of these writers were perhaps flourishing before this period, (i e before 6th century and 4th century), as they are mentioned in the list of teachers of Vāstu in the Matsyapurāna[2] It is also probable that during this period some of the works on Vāstu current in North India were re-written in the South in a new form suitable to the Dravidian style of architecture I have showed elsewhere that the treatises of Kāśyapa[3], Viśvakarmā and Parāśara and also perhaps of others were thus re-edited in the Deccan Thus arose the new school of Dravidian Vāstu Vidyā and temples were divided into 96 kinds as mentioned by Daṇḍī The available South

[1] Bṛihat Saṃhitā, ch. 56 and 57

[2] Brahmmā, Maya, Bhrigu, Śukra and Nagnajit (Matsyapurāna, ch. 252, verses 2-4).

[3] The work of Kāśyapa extensively quoted by Bhattotpala in his commentary on Brihat Saṃhitā appears to have been a North Indian text similar to and following the system of Brihat Saṃhitā and the Purānas. But the available works of Kāśvapa and also that referred to in the Śilparatnam appear to be works of the Southern School Hence I conclude as above

Indian Vāstu texts therefore belong to this developed Dravidian School.

3. After the composition of the Bṛihat Saṃhitā (6th century A.D.) and the Gupta period, Indian architecture had made great advance, innumerable types of buildings and temples had been constructed, of various forms with various features not noticed before. Dandin (7th century) refers to 96 kinds of temples (Vide Introduction to the 'Atri Saṃhitā') and Bhaṭṭotpala (9/10th century) in his commentary says that according to Hiranya-Garbha there were 120 kinds of houses. Thus before the 9th century, various kinds of classification had grown up in India The Visnu-dharmmottaram also refers to 100 kinds of temples. New orders or styles also arose in this period. New classification of temples had therefore to be made in this period. It was perhaps now that a classification was made on the basis of the shape of the temples, their being square, octagonal, rectangluar, circular and oval or apsidal. This was done in North India by dividing temples first into 5 classes (Vairāja, Pushpaka, Kailāsa, Maṇika or Mālaka and the Trivishtapa) and then subdividing each in various varieties New orders of architecture also arose in North India in this period—viz , the Lāṭa, Vairāṭa This phase in the development of the Indian building types is represented by the Agni Purāna and the Garuda Purāna[1] (the dates of which are unknown; but I am disposed to place them between the 6th and the 10th century A.D) which contain the new classification of Nāgara temples as well as the name of the Lāṭa order of temples (Table IB). Another book viz. the Hayaśīrṣa Pañcharātram was also composed during this period and refers to the Nāgara, Lāṭa and Vairāṭa Schools of architecture[2] In the paper read by me in the Patna sitting of the Oriental Conference I showed that, in fact, the Agni Purāṇa is indebted for these chapters on Vāstuvidyā to the Hayaśīrṣa Pañcharātram. The Hayaśirṣa

[1] Agni Purāṇa, ch 104.
Garuḍa Purāṇa, ch. 47.

[2] Hayaśirṣa Pañcharātram, ch. 19.

P. therefore was an earlier work than the Agni Purāṇa. This age of the Indian Vāstu works culminated in the 11th century when the Samarāṅgaṇa Sūtradhāra was composed. This work shows its acquaintance with not only the early 20 kinds of Nāgara temples, but also with the temples of the Drāviḍa order, the Vairāṭa and the Bhūmija styles and also with various other classifications of temples not known from any other work. The Agni Purāna, Garuda Purāṇa and the Hayaśīrsa Pañcharātra were certainly composed before the Samarāngana as is evident from the fact that the Vairājadi temples, according to the former works were 45 in number, whereas according to Samarāngaṇa they were 64. The Visnudharmmottaram[1] refers to 100 kinds of temples and hence might be a later work It refers to the worship of Hayagrīva and hence might be later than the Hayaśīrsa Pañcharātram. It could not be perhaps earlier than the 8th century Thus we may conclude that from the 6th century to the 10th century A D almost all the known Indian styles of architecture and methods of classification of temples had grown up in India

It was also perhaps in this period (6th to 10th century) that classification of temples according to shape was made in the South India as in the North The South Indian texts referring to Drāvida, Nāgara and Vesara styles (or classes) originated now and we may guess that the real meaning of at least the first two terms might have been at first known to these writers but later on confused The printed work of Maya, the Mayamatam, the Atri Samhitā and several available Āgama works might have been composed in this period It may be that the printed Mayamatam might be a re-written edition of the original Mayamatam, but it is certainly a very old work. This probably existed before the 10th century A D. During this period, the South Indian temples were constructed with Śikharas having one to twelve storeys only, and Gopurams with only seven storeys. The Samarāngana S. of the 11th century says that temples of the

[1] Viṣnudharmmottaram, ch. 86-87.

Drāviḍa class can contain twelve storeys in the Śikhara[1]. The Mayamatam and the Āgamas really describe temples of twelve storeys and Gopurams of seven storeys (Vaikhānasa Āgama mentions twelve-storeyed Gopurams). Later South Indian works, as we have shown, refer to sixteen-storeyed temples and Gopurams. Thus we may conclude that the extant Mayamatam (the traditions of which was also handed down by the later works, the Śilparatnam and the Īśāna-Śiva-Gurudeva-Paddhati) was written before the Samarāṅgaṇa, or in or before the 10th century A.D. It is also remarkable that the Mayamatam is the only South Indian work in which it is stated that the Śikhara can be in shape like a "ripe Āmalaka" (Ch. 18. 16) which is generally referred to in the North Indian texts only.

4. After the 10th century A.D the North Indian works on Vāstu continued to, more or less, follow the classifications of the Purānas or the Hayaśīrsa Pañcharātram. The Samarāṅgaṇa Sūtradhāra is an important production of this age (11th century) and refers to various kinds of temples besides the main ones which I regard as Lāta temples (See foot note (3), p167) The Aparājita Pracchā refers to 25 kinds of Varāṭa temples, whereas the Samarā. S. refers to 12 only. The Aparājita thus may be later in age than the Samarāṅgana and contains various classifications unknown to other works. But the Aparājita also appears to be belonging to the Lāṭa school (of 12/13th century). The original writings of the early preceptors of Vāstu were gradually falling into disuse or were forgotten altogether. But even as late as the 15th century Maṇḍana Sūtradhāra of Mewar upheld the traditions of dividing temples into forty-five classes according to the Vairājadi classification (as in the Agni Purāna and Hayaśīrṣa etc.)[2]. Temples in the Nāgara and other northern styles, we may, therefore, guess, continued to be built up to that period.

In the Deccan, however, great changes were going on in the field of the Vāstuśāstra; and architecture was also making

[1] Samarāṅgana, chap. 61, verse 1.
[2] Acharya, Indian Architecture, p 103-104.

new advancements and undergoing changes betwen the 10th and the 15th centuries. It was in this period that the Chalukyan style made full progress, the Rashtrakutas, the Hoyasalas, Yadavas, the Cholas and the Pandyas were erecting new temples in new styles, which were modified forms of the Dravidian style of architecture. It was now that seventeen-storeyed temples and Gopurams were constructed in the Deccan. For various reasons I place the Mānasāra (see next chapter) and some of the available works of Kāśyapa (Chap. XIII) in this period The Mānasāra knows Gopurams with 16-17 storeys but temples of only 12 storeys. The other work is acquainted with temples of 16 storeys but Gopurams of only 7 storeys The printed Mānasāra refers to Viśvakāśyapa (will it be Vriddhakāśyapa—an earlier or elder Kāśyapa ?) as an authority consulted by it This may indicate that there was another (earlier) work of a Kāśyapa before the Mānasāra, which was perhaps different from the now available work of Kāśyapa This is further indicated by the fact that the Atri Saṃhitā though acknowledging Kāśyapa as an authority is of opinion that temples can have storeys numbering 12 only (Atri Saṃhitā VII 13). A definite date for this stage of the South Indian Vāstu works may be inferred from the Śilparatnam (16th century) and the Īśāna-Śiva-Gurudeva-Paddhati (11th century). The Śilparatnam does not refer to the Mānasāra, though Acharya takes the latter to be a standard work of South Indian architecture. It, however, takes the Mayamatam and a work of Kāśyapa as its main authorities[1] and also refers to Agastya. It refers to sixteen-storeyed temples (as in the Kāśyapa Śilpa) and to seven-storeyed Gopurams only. The Īśāna-Śiva-Gurudeva-Paddhati also does not refer to the Mānasāra but to Maya and Parāśara. About fourteen passages attributed in the Ī-Ś-G-Paddhati to Maya have been found out by me in the printed Mayamatam. These discusssions therefore,

[1] There is great similarity in the verses even (See Indian Culture, VII. 1, p 78)

indicate that the work of Maya was earlier than the Ī-Ś-G-Paddhati (11th century A.D.). A work of Kāśyapa was also existing before the Śilparatnam (of 16th century). This work of Kāśyapa available to the Śilparatnam refers to sixteen-storeyed temples[1]. As the Mānasāra does not refer to sixteen storeyed temples, we may guess that the Mānasāra was an earlier work than that of Kāśyapa and the Śilparatnam, but the reference in the Mānasāra to sixteen-storeyed Gopurams may point to its being later than Kāśyapa's work. Moreover it cannot be explained why the Śilparatnam being an avowed work on architecture does not refer to the Mānasāram at all. The Ī-Ś-G-Paddhati being a religious work might have followed a different school when dealing with architectural matters (as it did that of Maya and Parāśara) and had no necessity therefore to refer to the Mānasāram. But this cannot be said of the Śilparatnam. Moreover, the Śilparatnam mentions in addition to the later system of temple classification, an earlier one which is quite different from that found in the Kāśyapiya or the Mānasāra This shows that it is difficult to ascertain whether the Mānasāra was later or earlier than the Kāśyapa's work. But this is almost clear that the Mānasāra as well as the Kāśyapiya had not gained so popularity even in the 15th century as the work of Maya had. I would therefore place the Kāśyapiya and the Mānasāra between the 11th and the 15th century A.D. (Also See Ch. XIII).

Regarding Kāśyapaśilpa, Mr. Pisharoti admits that (p. 25, India Culture, Vol. VI) it is the most advanced from the point of view of the structural development and therefore represents the latest phase of Indian architecture. But still he calls it a fairly old work; of course, how old has not been said by him. I, however, agree with his statement that even later works did not forget the ancient basis of classification, not only because of the reasons he has enunciated in the footnote [(11), p. 25] (which is also true) but also because these works were based on earlier texts and at the same time tried to include matters fitting the existing condi-

[1] The Śilparatnam itself says it (Ch. 37. Verse 110).

tions. Moreover the Mayamatam classifications of temples, Gopurams, bases, pedestals and pillars all point to an earlier stage of architecture. Thus the Mayamatam was undoubtedly an earlier work than the Kāśyapiya, Śilparatnam and the Mānasāra. Kāśyapa's work knows only 4 kinds of Upapīṭhas, all the 14 kinds of Adhisṭhānas as mentioned in the Mayamatam, besides seven other kinds, 15 kinds of pillars, some similar in name to those in the Mayamatam and some to those in the Mānasāra, 15 kinds of Gopurams, similar to those mentioned in the Mayamatam (but unlike those in the Mānasāra) and temples of 98 varieties of which 45 names are similar to those in the Mayamatam, rather to those mentioned in the Mānasāra, though it refers to sixteen-storeyed temple which is unknown to the Mayamatam (See Tables). Thus Kāśvapa's work was later than the Mayamatam. Comparison of the Kāśyapa's work with the Mānasāra indicates that though in some respects the former is more advanced than the Mānasāra (E G it describes sixteen-storeyed temples, unknown to the Mānasāra), it is likely that it is an earlier work than the Mānasāra, as the other classifications indicate. As regards residential houses, Kāśyapa prescribes that "Houses of human beings should not have more than 7 storeyes, and king's houses might be of seven storeys; while the Mānasāra enjoins "five to twelve storeys". It was therefore more popular in the 16th century (time of the Śilparatnam). Moreover if the Mānasāra knew of twelve-storeyed temples of all parts of India, as Acharya suggests, it ought to have known the sixteen-storeyed temples too; for by the 11th century sixteen-storeyed temples had grown up in North India (Vide description of the 'Meru' temple in the Samarāngana) This shows that the absence of reference to sixteen-storeyed temples does not necessarily indicate that the Mānasāra was earlier than the 11th century. It was acquainted with sixteen-storeyed Gopurams which was unknown to the Kāśayapa Śilpam and other South Indian works. The omission to refer to sixteen-storeyed temples was therefore intentional and not due to its early

date. Moreover, the Mānasāra also refers to a Viśva-Kāśyapa as an earlier authority. Therefore the Mānasāra may be regarded as a later work than the Kāśyapa-Śilpam. It may be safely said that in its present form it was not a standard work of South Indian architecture and that it was not copied in the other available South Indian works, as Dr. Acharya holds.

The date of the Mānasāra will be discussed in more details in the next two chapters:

This chapter, read along with the tables of temples (No. 1 to IF), will therefore indicate the various developments of the system of classification of temples of various Indian orders. This may be indicated in a Tabular form, as below:

A NORTH INDIAN TEMPLES.—

1. Viśvakarmā and Nāgara temples	—(Meru-ādi) 20 kinds —earliest.
2. Nāgara Temples	—(Vairājadi) 45 kinds —After 6th century A.D.
3 Nāgara	—(Śrikuṭādi) 35 kinds —before 11th century.
4. Nāgara (?)	—100 kinds (Viśnudharmottaram).
5 Nāgara Kalinga type	-Before 10th century.
Lāta —45 kinds (Agni Purāna)	—After 6th century A.D.
Lāṭa —64 kinds	—Before 11th century.
Unknown types—Meru-ādi	16 kinds—Different from Meru-ādi 16 of the Śukranīti.

—Ruchakādi	64 kinds	Before 11th century. (Śamarāṅgaṇa S.)
—Śrīdhara-ādi	50 kinds	
—Meru-ādi	20 kinds	
—Vimānādi	64 kinds	
=	214 kinds	

B. SOUTH INDIAN TEMPLES:—

1. Twelve kinds mentioned in Sūprabhedāgama and 16 Meru-Ādi temples of the Śukranīti.

2. Twenty kinds mentioned in Īśāna-Ś-G-Paddhati. [Table I C (IV and V)].

3. Thirty-two kinds mentioned in Ī-Ś-G Paddhati. [Table IC (II)].

These three perhaps were temples before the rise of the Dravidian style—or earliest Drāvida temples of Maya school—Pre-Sixth century A.D.

4. 96 kinds (including no. 2 and 3 above) of temples mentioned in I-Ś-G-D-Paddhati, Vaikhānasāgama, Atri Samhitā—Before Dandin (7th century) to 11th century

5. Temples up to twelve-storeyed ones mentioned in the Mayamatam and I-Ś-G-Paddhati [Table I (IV B)]—6th to 11th century A D

6. Temples upto sixteen-storeyed ones—as in Kāśyapa Śilpam—11th to 14th century (before Śilparatnam)

7. Temples mentioned in the Mānasāra (Latest)

C. UNKNOWN VARIETIES :—

(a) Vesara temples (Before 11th century).
(b) Bhūmija temples. (Before 11th century).
(c) Andhra temples
(d) Varāta temples —12 kinds before 11th century.
-Do 25 kinds— Aparājita Pracchā
(e) 10 others Aparājita Pracchā
(i) Lati—perhaps same as 'Lalita' of Samarāngana (Ch 56 Rucakādi 64).
(ii) Vimāna
(iii) Miśraka (perhaps same as Samar, Ch 56)
(iv) Sāndhāra (perhaps same as Samar, Ch. 56).
(v) Vimāna-Nāgara.
(vi) Vimāna Pushpaka
(vii) Balabhī
(viii) Napumsaka.
(ix) Simhāvalokana.
(x) Rathārūhā.

Chapter XVII

RELATION OF THE MĀNASĀRA WITH OTHER TREATISES ON INDIAN ARCHITECTURE

In the "Indian Architecture", Dr. P. K. Acharya writes as follows:—"In view of these facts, we venture to expect that the reader may be inclined to consider more seriously the other evidences which are undoubtedly more authenticated and substantial, including those regarding the connection of the Mānasāra with Matsya Purāṇa (450 A.D.) on the one hand, and the Brihat Saṃhitā (550 A.D.) on the other. On this assumption we shall perhaps be justified in placing the Mānasāra before the Brihat Saṃhitā and somewhere close to the Matsya Purāna" The various arguments adduced by Dr. Acharya for placing the book in the Gupta period will be discussed in the next chapter; but as regards his contention that, "there seems to have been a relation of indebtedness between the Mānasāra, on the one hand, and on the other hand, the architectural portions of the Agni Purāṇa, the Matsya Purāna and the Brihat Saṃhitā" (p. 160), I most respectfully differ from the learned author, for reasons noted below

(1) First, as regards the comparison of building types in the Mānasāra with those in the Purāṇas and the Bṛihat Samhitā (Indian Architecture, p. 110 ff).

Acharya's comparison proves that very few names of buildings in the Mānasāra are similar to those in the Purāṇas or the Brihat Saṃhitā But notice has not been taken of the fact that the buildings which agree in their names do not, at the same time, possess the same features. Thus, the temple, called "Meru" in the Purāṇas, has 12 or 16 storeys; whereas, in the Mānasāra, the temple called 'Meru-Kānta' is a three-storeyed building. 'Kailāsa' in the Purāṇas is eight-storeyed, but in the Mānasāra, it is described as three-storeyed. Similarly 'Vṛitta' is an one-storeyed building according to the Brihat Saṃhitā, while "Vivṛita" of

the Manasāra is a nine-storeyed building. It is, therefore, not a fact, as Acharya thinks, (p. 168), that the name "Meru, "Vṛitta" etc. of the Bṛhat Saṃhitā are improved forms for "Meru Kānta", or "Vivṛta" of the Mānasāra. Meru temples are, therefore, quite different from the "Meru Kānta" temple and so also is the case with "Vritta" and "Vivrita" temples.

Thus it is clear that the building types of the Mānasāra and the Purāṇas do not agree. Though some of the names are similar, the temples do not agree in their characteristics. The names are not quite meaningless but they indicate the features of the temples (See Table ID)

(2) Secondly, as regards the method of classifying the buildings

"The broadest division into storeys under which the Mānasāra describes the buildings in 12 or 13 chapters", is not to be found in either the Purānas or Brihat Samhitā. This difference, Mr. Acharya tries to explain (p 119) by saying that this division has lost its prominence because Brihat Samhitā or the Purānas are non-architectural works But the absence of this method of classification is not peculiar to the Purānas or Bṛihat Saṃhitā; it is not to be found in the Viśvakarmaprakāśa, Samarāngana Sūtradhāra, Haya-śirsa Pañcharātra etc. which are undoubtedly architectural treatises. Then, again, even the Agni Purāna which, according to Acharya, perhaps refers to the Mānasāra, follows a system of classification not even known to the Mānasāra.

Thus, these different methods of classification and the difference in features of temples even having almost the same names, are great obstacles on the way of establishing a relationship between the Mānasāra and the Purānas or Brihat Saṃhitā.

(3) Thirdly, as regards the mouldings of the pillars and the five orders of columns.

Acharya himself shows that only three names of mouldings of the Mānasāra agree with those in the Purānas or Bṛihat Saṃhitā. This similarity may be explained by the

fact that these names were current all over India wherever these mouldings were used. On the other hand, most of the mouldings of pillars, bases or pedestals mentioned in the Mānasāra are not to be found in the Purānas or Brihat Saṃhitā.

The criteria of division of the pillars are the same in the Mānasāra and the Purānas, but how to explain the most important fact that the names of the five orders (or varieties) of columns in the Mānasāra (Vishnu-Kānta, Rudra-Kānta etc.) differ from those in the Purānas (Rucha-ka, Vajra etc.)?

Again we find that many of the treatises such as the Maya-matam, Mānasāra, Śilparatnam etc describe in details the various classes of pedestals, bases etc. This system of classifying the bases is not to be found in any of the Purānas or the Bṛihat Samhitā. This canot be explained by the non-architectural character of the latter books. For we find that many of the Āgamas, evidently not architectural treatises and the Īśāna-Śiva-Gurudeva-Paddhati, another book of religious character, contain these classifications, whereas the Viśvakarmaprakāśa and Hayaśīrsa Pañcha-rātram, both architectural in character do not contain these things (See Chap XIX)

These considerations of the points of difference (viz. of building types, methods of classifying buildings, names of mouldings and pillars, classification of bases and pedestals etc.) between the Mānasāra and the Purānas or Bṛihat Saṃhitā or several other works, led me to conclude that the Mānasāra mainly deals with one school (viz. South Indian style) of architecture and the Purāṇas or Bṛihat Saṃhitā etc. deal with another school.

We know that storeys form the most important characteristic feature of the Dravidian temples. Therefore, the stress, given in the Mānasāra classification of buildings, on storeys indicates that the Mānasāra is a treatise on Dravidian temples, incidentally referring to other schools. This is borne out by the Samarāṅgaṇa Sūtradhāra where this division into storeys has been done only with regard to the

Dravidian temples (Chap. 62), whereas in the so many other chapters dealing with building types (Chaps. 55 to 63), the method is altogether different. The pedestals and bases have also been classified in this book (Chap. 61) only with regard to Dravidian buildings and the names of various classes of pedestals are almost similar to those in some other books. The difference in the names of mouldings in the Mānasāra and the Purānas and in the names of the pillars therein may thus be explained by assuming that these mouldings and pillars were used only in the Dravidian temples which was the main subject matter of the Mānasāra. Thus the Mānasāra was a treatise on the South Indian architecture, while the Purānas and Brihat Samhitā refer to the architecture of some other style viz. the Nāgara and others. The points of similarity between the Mānasāra and the Purānas are outnumbered by the points of their difference. Thus no relationship can be established between the Purānas and the Mānasāra from the comparison of the subjects so long discussed.

(4) Similarity as regards the subject matters must be explained by the fact that both the Mānasāra and the Purānas were based on earlier original texts which followed the universal traditions of the Vāstu works of India.

(5) The omission of the various schemes of ground plan, except the two most common, need not prove indebtedness. The Brihat Samhitā could not in so short a space contain all the schemes Mānasāra, an avowedly architectural work and so elaborate in other details, ought not to have omitted the other schemes. Therefore if this proves indebtedness of one, it must be said that the Mānasāra is the debtor, and not that "Varāhamihira faithfully followed the Mānasāra"

(6) Varāhamihira's omission to refer to the Purānas or the Purānas not referring to Varāhamihira cannot prove indebtedness of any one to the other. This is a negative proof. Moreover both the Purāṇas and Varāhamihira had their materials from original Vāstu works and not from compilations. The Matsya Purāṇa quotes the names of

authorities and calls them "teachers of Vāstu", and in this list Varāhamihira cannot obviously find a place, for, surely, Varāhamihira was not a teacher of Vāstu Varāhamihira, again, does not mention his authorities exhaustively. His "Manvādi" might or might not include the Purānas

(7) Similarity in Verses and Chapters cannot prove indebtedness Both the Mānasāra and the Purānas confess that they took their materials from earlier works. These works must be sought out before the originality or indebtedness of the later writers is asserted Dr. Acharya says in this connection (p 167), "Such a relation is untenable between the Matsya Purāna and the Brihat Samhitā unless however, we choose to suppose that there might have been an unknown authority or some floating tradition, by which these treatises have been influenced in the same way . but without any knowledge of one another But I have failed to satisfy myself with such a hypothesis". But why call these autorities unknown ? They are referred to in those books Moreover we cannot say that the traditions were floating India had writers on Vāstu before the Purānas, Brihat Samhitā and Mānasāra were written. The similarity between the Purānas and the Arthaśāstra proves the existence of these traditions and the works on Vāstu before at least the 1st century A.D (if not 4th century B C)

(8) The want of any reference in the Mānasāra to the Brihat Samhitā or the Purānas is again a negative proof Moreover, as shown above, the Mānasāra is a South Indian work incidentally referring to the other schools So the omission of reference to the Purānas or to Varāhamihira need not be taken seriously at all. If such omission really proves anything, why is the Mānasāra not referred to in the Samarāṅgana Sūtradhāra of the 11th century and in the Śilparatnam of the 16th century? Is Mānasāra then a later work than these?

(9) Mr. Acharya has quoted a verse from the Agni Purāṇa to show that the Mānasāra has been referred to in the former work. The passage is:

"Tadūrddhvaṅtu Bhavedvedī Sakaṇṭhā Mānasārakam", (p 169).

Dr. Acharya proposes to read "Mānasārakam" or "Malasārakam" for the last word in the passage, but prefers the first reading, on account of some grammatical difficulties he finds in case of the second reading But the real reading of the word is obvious from another similar passage found in the Agni Purāna (Cal Edition, Chap. 104, Verse 11) which reads, "Tritīye Vedikā tvagneh Sakaṇṭhomalasārakah". The word, therefore, is not "Malasārakam" or "Mānasārakam" but either "Āmalasārakah" or "Amalasārakaḥ". In the first passage, therefore "Sakaṇṭhā" should be taken together with the last word, forming a compound word, which does away with the grammatical difficulty also. The first passage therefore means, "Above the 'Śukanāsā' should be the Vedī and the Amalasāra furnished with the neck". 'Amalasāra' is the famous ornament on the top of temples and is also known as "Āmalaka" That the word is 'Amalasāra' is evident also from the following verses

(1) "Vedyāścopari Yacchesam Kanthaścāmalasārakah"
(Mat P 269 13)

(2) "Śukanāsām prakūrvīta tritīye Vedikā matā ||
Kanthamamalasāram ca caturthé parikalpayet"
(Viśvakarma-prakāśa, Chap 6, Verse 73)

(3) "Tadūrddhvam tu bhavedamśah Kantha - śchāmalasārakān"
(Hayaśirsa Pañcharātra quoted in the Haribhaktivilāsa, Chap. 20)

(4) 'Caturthé punarasyaiva Kaṇthamāmulasādhanam"
(Garuḍa Purāna, Chap 47, Verse 5)

In this verse, the word is again misread, but the "Ā" and the "la" are quite clear That in the Agni Purāna (Cal Edition) "la" is sometimes read as "na" is clear in another place—"Lāta" has been explained as "Nāta" (Ch. 104. 21½).

Thus Mr Acharya's attempt to connect the Mānasāra with the Agni Purāna cannot stand. In fact I have shown in another place (Rupam Jan. 1926 and also Chap. XIII) that the chapters on architecture in the Agni Purāṇa

probably were based on the Hayaśīrṣa Pañcharātram. The above passage quoted from the latter work also goes to prove this.

It is, therefore, evident that on no account can a relation be established between any of the Purānas or Bṛihat Saṃhitā and the Mānasāra The similarity that really exists between these books is due to the prevalence all over India of common architectural traditions which may be called the fundamental principles of the Indian Vāstuvidyā, and also to the indebtedness of all the available treatises to earlier works which are now lost to us, perhaps for ever. But the nature of those has already been discussed

In conclusion, I think Acharya has given somewhat more importance to the Mānasāra than what is justly due to it. It is undoubtedly the most elaborate of all the available treatises on architecture but surely this was not the standard work in an early age Kāśyapa and Maya appear to have been more popular authorities Both of them have been mentioned in the Śilparatnam and the Īśānaśiva-Gurudeva-Paddhati. Several passages attributed to Maya in the latter work have been discovered by me in the printed text of the Mayamatam. Many passages in the Śilparatnam are almost identical with passages in the Mayamatam. Neither of these two books, however, refers to the Mānasāra nor is it referred to in the Samarāngaṇa Sūtradhāra.

CHAPTER XVIII

DATE OF THE MĀNASĀRA

WE shall now discuss the date of the Mānasāra that is extant nowadays We have already shown that the book could not have been written before the 11th century But as Dr Acharya places it in the Gupta period (450 to 550 A.D.) we shall discuss here all other grounds which have led me to reject the date proposed by Acharya

(1) A late date for the Mānasāra is apparent from the fact that the Mānasāra refers to thirty-two authorities consulted by the author Out of these thirty-two authorities or works, twelve or thirteen only are known to us from other sources. The remaining twenty such works or writers appear to be later writers of Śilpa works, later than the available texts discussed above

(2) The existing Mānasāra refers to the word 'Mānasāra' as the name of the book, of an earlier work of that name and also as the name of a sage (or writer on Vāstu-vidyā) This is certainly a great confusion which has not been explained by any modern writer including Acharya I think we can explain this confusion only if we take this work to be a very late compilation of another book called the 'Mānasāra'[1] This late compilation was made at a time when the meaning of the word 'Mānasāra' was forgotten by the general public The Mānasāra mentions several other sages with the word 'Māna' before their names E G Mānasāra, Māna-Kalpa, Māna-Bodha and Māna-Vid I think these are not names of sages but of works, as is evident on their faces All these really mean "a work which gives the essence of Māna or from which knowledge of Māna may be acquired" The real difficulty is about the word Māna This may mean 'measurement' or the

[1] The early 'Mānasāra' might have been existing before the 10th century or earlier The original work of Agastya (Māna) must have been a very ancient work

name of Agastya (see Sāyana's commentary on the Rigveda referred to by me, Chap. II). The works, therefore, may mean 'a work on measurements (of architecture)' or a "summary of Agastya's work". Agastya was acknowledged as a great authority by all South Indian writers on Vāstu including the Mānasāra. When the Mānasāra referred to an early Mānasāra and other works with prefix 'Māna', the meaning of this word 'Māna' was confused. The Mānasāra therefore naturally refers to these early summarised versions of the work of Agastya as names of sages, and to the work itself also as a Handbook of (architectural) measurements (Māna). The word 'Mānasāra' might really be the name of a person, as the name of a king of Malwa was But there is nothing to connect this 'Mānasāra' with the king of Malwa of that name except the similarity of these two words But Māna-Bodha, or Māna-Vid etc. cannot be explained as names of persons On the other hand, the explanation given above by me will prove that the edited Mānasāra was a very late compilation of Vāstu Śāstras based on various other works, perhaps of the Agastya school[1] It was done at a time when the word 'Māna' as the name of Agastya was forgotten by the people, but they remembered that the earlier works 'Mānasāra, Mānavid, or Mānabodha' all were connected with the names of a sage. Hence the Mānasāra also explained the words as names of sages[2]

(3) The relation of the Mānarāsa with the Bṛihat Saṃhitā, the Purānas, the Āgamas and other South Indian Śilpa texts like the Mayamatam etc which Acharya tries to establish in his book, cannot be accepted. I have already

[1] The available work of Agastya called the Sakaládhikāra says that it was written by Agastya under the founder of the Pandya Government The Mānasāra might have been a later compilation under either the Pandyas or Cholas.

[2] In the list of historical architects in Acharya's Dictionary we find the name of an architect named Mana (1428-29), grandson of Viśāla The Mānasāra also refers to a Viśāla as an earlier authority I do not know if the name Mana, here, may be read as Māna, which will place the Mānasāra in that case to the 15th century. That may also explain why the Mānasāra is not mentioned by the Silparatnam.

discussed this partially in the foregoing pages and also in the last chapter (the paper read before the Oriental Conference) I have shown that the classification of temples in the North Indian texts—the Purānas and the Brihat Samhitā, or even in the Mayamatam is not similar to that found in the Mānasāra. I have also shown that the Agni Purāṇa could not have referred to the Mānasāra at all I may here point out again that the Mānasāra shows acquaintance with seventeen-storeyed structures (which was unknown to most of the other writers), describes a large number of temples (98) than what is found in other works, larger number of pedestals, bases, pillars, mouldings thereof and Maṇḍapas This does not show that being the best of the standard works, it has referred to so many kinds and details of structures, it also means that it was of a time when Indian architecture had assumed so many elaborate forms. The frequent use in the Mānasāra of the word 'Kānta' after the names of structures, not found in so large number in any other texts, also points out that these names were given most mechanically and indicates a late period for the composition of the work

(4) The detailed treatment of the Mānasāra cannot be again explained by saying that it was dealing with buildings of all parts of India, comprising the Northern, Southern and Eastern styles In fact, the book does not deal with all the styles of Indian architecture, but simply with the South Indian, with incidental references to that of other countries. This is quite evident from the comparison of the Mānasāra classifications of temples, Mandapas and pillars with those in the other Northern and even South Indian works on Vāstu (See Table).

The fact that the 'Āmalaka' (the crowning piece of all North Indian temples) is not mentioned in the Mānasāra also points to that fact Acharya tries to explain it by saying that the Mūrdhni-Ishṭaka mentioned in the Mānasāra serves that purpose. The form of the 'Mūrdhni-Ishṭaka' was certainly quite different from that of the Āmalaka which is mentioned in all North Indian Śilpa texts and

found in all Indian temples built in the North Indian style. The South Indian texts refer to the crowning member of the temples as the 'Sthūpi', the form of which may be guessed from what we actually find on the top of the Dravidian temples. The Āmalaka certainly is a feature which clearly distinguishes the North Indian style from that of the South[1] Its omission not only in the Mānasāra but in all allied works undoubtedly proves that these works are dealing with South Indian style of architecture.

(5) Reference to Buddhist buildings in the Mānasāra, though in a cursory way, led Acharya to think that Mānasāra was written at a time when Vaisnavism, Buddhism and Jainism flourished side by side in India i.e. in the Gupta period. This fact can be explained in various other ways, without placing the book in the Gupta period.

Firstly, the present Mānasāra is based on many earlier Vāstu works, some of whom were certainly composed in the Gupta period (as explained by me before) and therefore must have contained references to Buddhistic structures. The Mānasāra was simply including those references in it.

Secondly, it was not simply in the Gupta period that these three religions were flourishing in India. Even if the book was compiled between the 8th and the 10th century, the author might have been acquainted with such a state of affairs, because even then, these three religions were flourishing at least in Eastern India under the Palas of Bengal.

Thirdly, it must be noted that Buddhism did not really disappear from South India at the time of the Rāshṭrakuṭas as Dr. Acharya thinks. That traces of it existed even in the early 11th century is now known from the fact that Rājarāja the great, the Chola king, allowed king Chuḍāmani Varman of Kedah to construct a Buddhist temple at Negapattam

1 This is also proved by a definite reference to it in the Hayaśīrṣa Pañcharātra (Ch 18) while discussing characteristics of Drāvida temples. "Āmalasārakasthāne . . . . . . tesām Adhokmukhī".

The word indicating what was to be there in place of the Amalasāraka is lost. But this shows that there was no Āmalaka on the Dravidian temples. The lost word may be "Ghaṇṭā".

and that even Rājendra Kulottunga patronised several Buddhist temples at the place This, I think, connects the author of the Mānasāra more with the Chola kings than the Guptas, because if written under the latter dynasty, references to Buddhist buildings would not have been so cursory as they are in the Mānasāra Moreover, a few vestiges of Buddhism are found even in the Vijayanagar kingdom. From an inscription we know that the Buddhists at Belur worshipped Keśava as Buddha There was also a Buddhist temple at Tiruvilanturai as mentioned in a Kumbakonam Inscription[1] (no 292 of 1929)

Acharya further says that the book was written under the patronage of Vaiṣṇava kings, and at a time when Vaiṣṇavism was the predominant religion This also, I think, connects the Mānasāra with a period after the rise of Ramanuja (11th century) and with the Cholas and the late Pandyas rather than the Guptas Moreover, there is no doubt that the author of the Mānasāra was a man of South India and dealt in his book with the South Indian architecture which had assumed most elaborate forms under the Cholas and later Pandyas and the Vijayanagar rulers The many-storeyed temples surrounded by five walls and courtyards, with elaborate Gopurams which the Mānasāra describes, may be the later South Indian temples built under the Cholas, the Hoyasalas, the Yadavas, the Paṇḍyas and the rulers of Vijayanagar. I may thus conclude that the published recension of the Mānasāra could not have been written before the 11th century A D. and I think after that century, may be even in 15th century as it is not referred to in the Śilparatnam

If we regard the present Mānasāra as a later compilation, it may be argued that the original Mānasāra might have been written in the Gupta period as Dr. Acharya suggests It is really very difficult to either prove or disprove it. But taking into consideration the elaborate treatment of architecture

[1] Indian Historical Quarterly XIII (1937), p 259-60 The first inscription further proves that the Mānasāra was written at a time when the Buddha was regarded as an incarnation of Viṣṇu, as Acharya himself admits (p. 190).

in the Mānasāra, it is still very difficult to place the book in the Gupta period. The work deals with the Dravidian style which could not have originated much earlier than the 6th century A.D. It is, however, probable that the original Mānasāra like the Mayamatam and the Kaśyapaśilpa was also a later (post-sixth century) recension of Agastya's original treatise on architecture, which undoubtedly must have been a very early work, earlier than even the Gupta period. That there was really an earlier Mānasāra is evident from not only the published Mānasāra referring to an earlier work of that name, but also from a fragmentary Ms. of the Maya Śāstram (mentioned by Dr. P. Bose—Principles of Śilpaśāstra) which also takes the Mānasāra as an earlier authority. In fact, this is the only book which refers clearly to the Mānasāra as an earlier authority. Dr Acharya's contention that all available works on Vāstuvidyā are indebted to the Mānasāra cannot be upheld. The available published Mānasāra is undoubtedly a later 'recension of recensions'.

Chapter XIX

RELATION OF MĀNASĀRA WITH VITRUVIUS

We shall now discuss the relation that Dr Acharya traces between the Mānasāra and the work of Vitruvius the Roman architect, and between the five Grecco-Roman orders and the five orders (?) of pillars described in the Mānasāra.

The similarity between the Mānasāra and the work of Vitruvius might not really have been accidental But what I want to point out is that this similarity does not indicate the indebtedness of the one to the other If there was any indebtedness, it was not between the Mānasāra and Vitruvius, but between Vitruvius and Indian Vāstu Śāstras which, as I have pointed out elsewhere, existed in a full fledged form in India from at least the Post-Mauryan period. The relation of India with the Greco-Roman world in the early centuries of the Christian era will thus explain the similarity of the Indian Śilpaśāstras with the work of Vitruvius The Mānasāra having been based on earlier works on Vāstu has naturally inherited that similarity with Vitruvius Mānasāra was not the first work of its kind, nor was it based on merely floating traditions. There were, before it, innumerable works on Indian Vāstu-śāstra, both in North India and the South. The matters dealt with in the work of Vitruvius were similar to those discussed in all the Indian Silpaśāstras and not in the Mānasāra only Whether the Indian works were indebted to Vitruvius or Vitruvius was indebted to the Indian writers is a difficult problem to solve But regarding this also I may suggest several points which might prove the truth of the latter proposition.

(1) Though I have said above that the Indian works on Śilpa must have existed in the 1st century A.D., I have shown elsewhere that 'Vāstuvidyā' in some form existed in India in

still earlier periods—at the time of the composition of the Arthaśāstra, the Jatakas, the early portions of the Epics, the Gṛihyasūtras and even the Vedas. It was definitely known at the time of the Buddha. This shows that the science of architecture arose in India long before Vitruvius. This raises the presumption that Vitruvius might have learnt this Indian Vāstuśāstra.

(2) In order to show what was the nature of the Indian Vāstuvidyā in that early period (Ch. XI-XII) which might have been known to Vitruvius, I may point out that "Choice of healthy situation" and "Forms of houses suited to different ranks of persons" which are dealt with by Vitruvius in Chapters III and VI-VII respectively in his book are matters which were difinitely known to the early Indian Vāstuvidyā. As we have not yet got the works on Indian Vāstuvidyā of that early age, a more detailed comparison is not possible. But the priority of the Indian Vāstuvidyā to the work of Vitruvius is unquestionable. I therefore believe that, as Vitruvius does not mention any early authorities for his system, he was quite likely indebted to the Indian Śilpa works.

In this connection, it is interesting to note that a temple was dedicated to the Roman Emperor Augustus at Cranganore in South India not long after the work of Vitruvius was written (in about 25 B.C.). Strabo also mentions that an embassy was sent to Emperor Augustus by a Paṇḍya king in 20 B.C. Do these relations of the Deccan with the Roman Empire indicate that Vitruvius really learnt the Indian Śilpaśāstras of the Southern school to which the Mānasāra also belongs?

Further light may be thrown by the similarity that Acharya discovers between the component parts of an Indian pillar and those of the Greco-Roman pillars. The component parts of the Greco-Roman orders are eight in number. According to Acharya, the Mānasāra refers to five mouldings (really 47, if the mouldings of the pedestal, base and entablature are taken into consideration), the Sūprabhedāgama describes seven and the Kiraṇatantra

refers to eight. The North Indian texts, like the Matsya Purāṇa and the Bṛihat Saṃhitā, however, refer to eight mouldings of the pillars. [I think the Brihat Saṃhitā and Kiraṇatantra refer to 8 mouldings including the capital and the entablature] (See discussion at the end of this Chapter). This indicates that the mouldings in the Greco-Roman orders are similar more to those of Northern India than to the Southern. The Kiranatantra, however, I believe, was a North Indian work of a very early period. From this I may conclude (1) that the Mānasāra, giving the largest number of mouldings to a pillar, was a later work than the others mentioned above, and (2) that, Vitruvius was acquainted with the earlier texts of the Indian Śilpaśāstras, rather than with the Mānasāra (i e texts of the 1st century B.C. either Northern or the Drāvida).

Dr. Acharya further attempts to find out similarity of the five Greco-Roman orders (Doric, Ionic, Corinthian, Tuscan and Composite) with the five orders of Indian columns (Brahmma-Kānta, Vishnu-Kāntu, Rudra-Kānta, Śiva-Kānta and Skanda-Kānta of Mānasāra of the southern school, or Ruchaka, Vajra, Pralīnaka, and Vritta of the Matsya Purāna and the Brihat Samhitā, the Northern Śilpa texts). But he himself points out that in India the names of these five orders have varied in various treatises (The Sūprabhedāgama, another book of the South mentions the names as Śrī-kara, Chandrakānta, Saumukhya, Priya-darśana and Śubhankari) whereas the names of the Greco-Roman orders have been left unchanged, and that in India, the names were based on the shape of the columns[1] while in Europe, the origin of the names is traced to historical Geography. These points of difference have, therefore, led me to think that the five names of Indian pillars do not really indicate five orders as the Greco-Roman terms indicate. The Indian names indicate only different kinds or varieties of pillars within the same order (North Indian or South Indian). The difference, that Acharya notices, in the

[1] This should be compared with the words Nāgara, Drāviḍa and Vesara of Southern texts which also indicate varieties of structure and not orders.

Indian names are due to the fact that the Northern texts (Mat. P. and Bṛi. Saṃ.) deal with the names of pillars built in the style or order of North India; and the Southern texts deal with the names of the South Indian pillars. The Indian orders are, therefore, to be found not in the names of these varieties of pillars but in the orders already mentioned by me in the foregoing pages, [The Nāgara, Drāviḍa, (doubtfully, Vesara), Lāṭa, Vairāṭa, Bhūmija etc.] which like the Greco-Roman orders were based on Historical Geography and indicated points of difference in style and not simply shape. The various Indian styles had so many things common to them that they should really be called various 'orders' and not styles. Coomaraswamy rightly says that these terms indicate different Indian orders as of Greek architecture.

Appendix D

MOULDINGS OF PILLARS

Dr. Acharya thinks that the Bṛihat Samhitā and the Kiraṇatantra refer to 8 mouldings of a pillar (1) Vahana, (2) Ghaṭa, (3) Padma, (4) Uttaroshṭha, (5) Bāhulya, (6) Bhāra(hāra), (7) Tulā and (8) Upatulā (Ind. Arch., p. 127) (Dictionary, pp 649-650) But I think that the names of the mouldings cannot be what Dr Acharya takes them to be. The word 'Bāhulya' which is taken here as a moulding is not so, nor does it mean 'projection' as he has written in his Dictionary (p 440) But it means 'thickness' and 'width' of the pillar That this is the real meaning is also apparent from the translation of the Bi Sam passage made by Kern (Dictionary, p 650 & 440). Dr Acharya takes Kern's translation as untenable and Kern himself translated the passage with the remarks "All this exceedingly vague". The translation as given below, I think, will show that these books were not vague at all First let us take the passage from the Brihat Samhitā (53. 29)

"The whole (length of the) pillar should be divided into 9 parts, one part will be (the height of) the (1) Vāhana, one part of the (2) Ghata, one of the (3) Padma, the same of (4) Uttaroshtha, thus giving one part (of the whole height) to each of them (Verse 29)" The remaining parts will be the shaft This passage refers to the height of the mouldings. Then the width of the mouldings on the capital and the entablature is described thus.—

"The Bhāratulās, which are one upon another, should be equal (in width) to the (width of the) pillar. The width of the Tulās and the Upatulās will be less by ¼ and ¼ (i.e. the width of the Tulā is ¼ less than the width of the Bhāratulā or the pillar, and the width of Upatulā again is ¼ less than the width of the Tulā)", or "The width of the Bhāratulās will be equal to the (width of the) pillar. Above these will be the Tulā and the Upatulā which will be (in width) less by ¼ and again less by ¼.

This translation will indicate that the pillar proper will have only 4 mouldings (1) Vāhana, (2) Ghaṭa, (3) Padma and (4) Uttaroshṭha. Above that will be the entablature which will be many in number. Above that will be the Tulā and above that the Upatulā. The number of mouldings is further clear from the Kiraṇatantra passage which may be also translated below thus:—

"Dividing the (height of the) Stambha into 9 parts, should be made (1) Udvāhana, (2) Ghaṭam, (3) Kamalam (i.e. Padma) and (4) Uttaroshṭha. But each should be constructred (in height) with one part (of the 9 parts)". Here we find exactly the same four mouldings as in the Bṛihat Samhitā. The Kiraṇatantra here does not speak of the Bāhulya and the entablatures. This is further supported by the Matsya Purāna (255.5-6) passage which may be translated thus.—

"By one ninth part (of the height) of the Stambha (will be) the (1) Padma, (2) Kumbha and (3) Antara (Dr. Acharya writes 'Astara' or 'Āstara') ('Aṃśena' in singular indicates that each should be in height $\frac{1}{9}$ the height of the pillar) The Tulā (in singular) is said to be equal to the Stambha (i.e. in width, 'Bāhulya', which is not mentioned here). The 'Upatulā' should be less than that (i.e. the Tulā) This (i.e this diminishing of the width) is everywhere by $\frac{1}{8}$ (a new proportion is set here, not found in the Bṛihat Saṃhitā) or by $\frac{1}{4}$ (as in Bṛihat Samhitā). In other Bhūmis (i.e. above the ground floor) this (diminishing of the width of Upatulā) should be less by $\frac{1}{4}$ and again less by $\frac{1}{4}$" (i.e in second storey the Upatulā should be less by $\frac{1}{4}$ than that of the ground floor, in the third storey, the Upatulā should be less by $\frac{1}{4}$ than that of the first floor and so on. This is indicated by the repetition of the word "Hīnam Hīnam"). The 'Bhāratulās' are not mentioned here. The absence of Bhāratulās in the Matsya Purāṇa and the plural number in 'Bhāratulānām' and 'Uparyuparyāsām' in the Bṛihat Saṃhitā may also suggest that Bhāratulā included 'Tulās', and the Upatulās; or they may also mean that there were to be many 'Bhāratulās'.

Similar is the case with Tulā and Upatulā which might be many according to Bṛihat Saṃhitā but one in Mat. P. (see also Samarāngaṇa below)

Thus if we consider all the mouldings of the pillar including the base, shaft, the capital, and the entablature, we find in these north Indian texts the following 8 mouldings:—

(1) Vāhan or Udvāhana
(2) Ghaṭa
(3) Padma
(4) Uttaroshṭha
(5) The shaft (not mentioned clearly but indicated)
(6) Bhāratulās
(7) Tulā
(8) Upatulā

The Matsya Purāna mentions only six mouldings including the entablatures, the Vāhana and 'Bhāratulā' being not referred to. The existence of Bhāratulā is further corroborated in the Viśvakarmaprakāśa (Ch 2 169) The verses in it are almost same as in the Kiranatantra and the Bṛihat Samhitā That in these verses regarding the Bhāratulā, Upatulā and Tulā, the word 'Bāhulya' means width and thickness is perfectly clear from a similar passage in the Samarāngana (Ch 28, Verse 42)

"Stambhāgrena samā Kāryā Vistārasthaulyatastulā" which means "The Tulā shall be made equal to the upper part of the Stambha in width and thickness" Here Tulā stands undoubtedly for the Bhāratulā The Tulā and Upatulā have got other names according to the Samarāngana Sūtradhāra.

The same mistake has been committed by Dr. Acharya in the meaning of the word 'Bāhulya' regarding the 'Śākhās' of doors (Dictionary, p. 440). Here too the word 'Bāhulya' does not mean a projection but 'depth'. (See Chap. XXIV).

Chapter XX

THE TWO PRINCIPAL SCHOOLS OF VĀSTUŚĀSTRA

It has already been shown that from the Vedic period there were two schools of architecture in India—the Aryan (popularly called N. Indian) and the Drāvida (generally called Southern). There were writers in both the schools, but their works have not come down to our times. Some quotations from their works may be found and also perhaps some later recensions of their work. Whatever difference might have been in the two schools in a very early period, the pre-Vedic, Vedic and later Vedic period, due to the difference in the structures of the Aryans and the non-Aryans, I have shown that upto 6th century A.D. there was perhaps very slight difference between the two schools. The matters discussed in the works of both the schools were very similar; they followed the same principles (See Chap. on 'Principles of Vāstuvidyā') but might have disagreed in the measurements and the forms of a few structures (as the Śatapatha Brāhmana does about the Śmaśāna). As we have got neither these structures, nor the works of the pre-sixth century A.D., we cannot definitely say anything further regarding this matter. This is supported by the fact that in the Vedic period, the view of Nagnajit regarding the construction of the fire-altar is not accepted on only a slight ground viz. width of the structure. The Arthaśāstra regulations which were perhaps allied to the Drāviḍa school are found almost in same form in all later Northern treatises and in the Purāṇas of the North. The names of the temples of the two different schools were also perhaps similar, though might not be exactly so, as is known from the comparison of Purāṇas with some of the Āgamas. The views of Maya and Nagnajit as quoted in the Bṛihat Saṃhitā indicate also slight difference (of measurement only) between the two schools. As I have hinted, it was a period

(beginning of which might be even in the Vedic period[1]) when there was already a mixture between the Aryans and Dravidians, and the culture of the one was being assimilated by the other. The buildings of Northern and Southern styles might have differed very little from each other before the 6th century A.D. and so did the Vāstuvidyā of this period. So far we have been able to gather, the pre-sixth century writers of the Drāvida Vāstuvidyā, some of whom might have flourished even before the Arthaśāstra, were Brahmmā, Śakra, Śukra, Maya, Bhrigu, Vrihaspati, Nārada, (? Nagnajit) and Agastya.

But from the 6th century, or a bit earlier, we find the rise of the new style of architecture in the Deccan (and also some branches of North Indian school, the Nāgara and others) As discussed already, new works dealing with South Indian architecture were now being written; old works of Dravida School were given new garbs and even several North Indian texts were adapted to the changed circumstances in the South and adopted by the Southern School. There is no doubt that from this period works were written in both the schools, which have now come down to us, and that from this time we notice a great difference between the two schools of the Indian treatises on architecture Even then, however, the principles (common to both) followed before were still acted upon by both the schools But in spite of it, the existing works may be easily divided into two groups—one belonging to the Northern School, the other to the Drāvida or South Indian School. This will be clear from the attached tables.

We enumerate first the names of the available works of the two schools which have already been discussed. To the Northern school belong the Matsya Purāna, Agni Purāṇa Bhavishya Purāna, the Viśvakarmaprakāśa, the Brihat

[1] Even in the Rigveda, Rishis of the Asura kings are mentioned; the Śatapatha refers to construction of altar by both the Gods and the Asuras (the Aryans and the Asuras or Drāvidas) The assimilation of the two cultures had therefore taken place before the latest limit of the Rigvedic period. (See Chap. XXVII)

Saṃhitā, some of the works of the Pañcharātra school, the Tantras (Kiraṇatantra), the Hayarśirṣa Pañcharātra (of the Saura Kāṇḍa, the Vishṇukāṇḍa and Saṁkarsana Kāṇda referred to in later works), the Viṣṇudharmmottaram and the latest being the Samarāngana, Aparājitapracchā and the works of Maṇḍana, (besides works of Pratishṭhā class of later periods—of Raghunandāna, Vāsturatnāvalī, Vāstu Pradīpa, Haribhaktivilāsa and some others, dealing mostly with religious aspects of the Vāstuvidyā only). The list is not exhaustive. New works may be found afterwards and many Mss. are lying unknown.

To the Southern school I would place the Śaiva Āgamas, the Vaishnava Pañcharātra works such as the Atri Saṃhitā and Vaikhānasāgama of Marīci and Kāśyapa, the Mayamatam, the Śilparatnam, the Aṃśubheda of Kāśyapa and other Mss. of Kāśyapa's work, Viśvakarma Śilpa, Viśvakarmā Vāstuśāstra, and Dīptatantra, the Āgastya (Sakalādhikāra), the Mānasāra, and the works of Sanat Kumara. The Śilpa Saṃgraha, the Tantrasamuccaya and the Iśāna-Ś-G-Paddhati also belong to this group. The Tibetan versions of Chitralakshaṇa of Viśvakarmā, Nagnajit and Prahlāda, I have not been able to consult. It is necessary to find out to which school they belonged. The recently discovered Vaiṣṇava Āgama, the Ratnāvalī also appears to be a Southern work (I. H. Quarerly, 1949, March).

The works of these two groups, though in certain way agreeing as regards the subject discussed (as shown by Dr. Acharya in his "Indian Architecture") differ in many vital respects from each other. Failure to recognise this fact has led writers on Indian Vāstuvidyā and architecture to fall into many errors. Dr. Acharya has tried to find out a similarity amongst all these works of both the schools from various view points. Similarity there is no doubt, but the points of difference are so many that we cannot say from the comparison, as Acharya has done, that all the available works were indebted to the Mānasāra in some form or other. Some of the mistakes I have discussed already (Chapters XIV to XIX). Many difficulties that scholars

find out arise out of this neglect in recognising the existence of these two schools of Vāstuvidyā and the difference among the works of these two. We should, therefore, try to again place together (in different places they have already been hinted at) some of these points of difference between the works of the Nāgara and the Drāvida Schools. All the points of difference can only be found out if a thorough interpretation of all the works can be made, which has not yet been done by me or any other scholar, the meaning of various technical terms being still not clear to us (in spite of Dr Acharya's brilliant dictionary, which contains however several errors).

I have already referred to the following points of difference.—

(1) System of classification of temples and names of the temples (Division according to Tala in S Texts unknown to Northern ones)

(2) The reference to Āmalaka in the Northern texts and its non-occurrance in most of the Southern works

(3) Difference in the names of the component parts of a pillar and names of various kind of pillars. (See Table).

(4) Use of the Suffix 'Kānta' in names of structures, only in the Southern texts.

(5) The 'Vesara' type of buildings unknown to Northern texts

(6) System of classifying bases and pedestals (See Tables 3-4)

That these points of difference cannot arise out of the fact that most of the texts which (according to me) belong to the Northern school are fragmentary or religious in character or are mere summaries, has already been discussed in the chapter on the 'Mānasāra's relation with other treatises' The difference is fundamental, arising out of the two different types of architecture dealt with in the respective works The Samar. Sūtradhāra, the Hayaśīrsa P. etc deal with architectural matters in detail. There are vital points of dissimilarity of these two works with the

Southern texts. We, therefore, notice the other points of difference below:—

(7) Names of residential houses in the southern texts differ from those found in the Northern ones (see table). But the Śilparatnam contains perhaps an earlier tradition similar to that of North India.

(8) So do the names of the Maṇḍapas The Viśvakarma Prakāśa, the Matsya Purāna and the Samar. S. describe 27 kinds of Maṇḍapas under exactly similar names, whereas the Mayamatam and the Mānasāra describe maṇḍapas of similar names (Mayamatam contains many names not found in the Mānasāra); and the Dīpta Tantra, Sūprabhedāgama, the Śilparatnam and the I-Ś-G-Paddhati form a different group in naming Mandapas of 12 similar classes (some of course not naming all of them). This also shows that the Mānasāra was not the only standard work in South India.

(9) As regards the Gateways of temples.

Though the word 'Gopura', is mentioned in all ancient Sanskrit literature in the sense of a Gateway of a city, it might have had a technical meaning indicating a special kind of structure at the gate. But none of the early Northern texts refer to the Gopuram in connection with the temple gates (in Dvāravidhāna) which form important chapters in all these works. The 'Gopuram' as a special structure (different even from other similar structures on the Gateway) is generally mentioned only in the Southern texts[1] and are divided into different varieties with different names. The Mānasāra described twelve varieties of Gopurams, different from those in the Ī-Ś-G-Paddhati which perhaps in this matter also, as regarding temples, was following an earlier tradition. This is an important matter in which the treatises of the two schools differ. The details of Gateways are discussed in all North Indian texts but they omit the

[1] I might suggest here that the terms, Dvāraśobhā, Dvāraśālā, Dvāra-Prāsāda, Dvāra-Harmya, Dvāra-Gopura or Mahāgopura did not originally refer only to their situation in the 1st. Courtyard, 2nd, 3rd, 4th, 5th courtyards respectively, but also to different structures of different forms (Mayamatam, p. 167).

word 'Gopuram'. We know, in this technical sense, the word is used mostly in South India, in North India the word used nowadays is 'Siṃhadvāra'. Thus it is that we account for the treatment of Gopuram only in Southern works and not in the Northern

(10) Similarly regarding compound walls:—The Southern texts invariably refer to five walls around a temple. This is not mentioned in any of the Northern texts Such compound walls are really found in South India only. Though North Indian temples are surrounded by courtyards and walls, I do not think there is any existing early North Indian temple with 5 courtyards, as in the South. This matter differentiates the Northern from the Southern texts

[As mentioned by Dr Acharya (p. 52) Vasantasenā's palace (in the Mricchakaṭika) was surrounded by seven courts The Arthaśāstra prescribes three concentric walls around a fort The Arthaśāstra, though perhaps describing South Indian architecture, may be, therefore, regarded as an earlier work than the Mricchakatika, the author of which also I think might belong to the Deccanese School The Atri Saṃhitā, though prescribing 6 courtyards around a temple says that "three walls are uttama" (Atri Samhitā, IX 36½)]

(11) Regarding the (Adhishthāna) Bases of temples –

This matter is described in details in all Southern works. The Samar S., ostensibly a North Indian work, refers to these as Pithas ('Upapītha' means in Southern works the portion below Adhishṭhāna and so we may take Pīṭha to be equivalent to the Adhishṭhāna) and describes five varieties of them in relation only to 'Drāviḍa' temples. Its omission in other North Indian texts, therefore, clearly proves that they were dealing with the Northern style and those describing them deal with the Southern order. The names of these Pīṭhas in Samar. S are very much similar to those found in the Mānasāra (see table of Adhishṭhāna).

(12) Regarding various mouldings.

As pointed out by me in another place (Ch. on Mānasāra's relation with other treatises) the similarity of the names of

mouldings in all the available texts does not indicate the indebtedness of these texts to any one of them. This similarity arises out of the fact that those mouldings which are common to structures of both the North and South India bear the same name. The names of all mouldings, however, are not the same in both the northern and southern texts. The buildings of the two orders were similar and also dissimilar in many respects regarding mouldings and hence there must be similarity and difference in the names of the mouldings. The difference between these mouldings will be apparent if we compare the description of a temple in the Northern texts with that of a temple in the Southern ones We have already referred to the Āmalaka of the Northern texts and Sthūpi of the Southern. The Shaḍvarga (i.e Adhisṭhāna, Pādavarga, Prastara, Grīvā, Śikhara, Sthūpikā) of a temple mentioned in southern texts was the principal features of a Southern temple, whereas, of nothern temples we may notice the following featurs to be invariably mentioned in the texts of northern India; viz. Janghā, Bhitti, Rathaka, Śukanāsā, Śikhara, Kaṇṭha, Amalasāra etc. Even the Kāmikāgama says that the Nāgara temples have eight Vargas (viz. Mukha, Masuraka, Jaṁghā, Kapoṭa, Śikhara, Gala, Ūrdhvavindu, Amalasāra along with Kumbha and Śūla). Similarly, the mouldings of a pillar mentioned in the northern texts are different from those in the Southern. The innumerable mouldings of pedestals and bases of temples mentioned in Southern texts are altogether wanting in the Northern texts Similarly, the 'Rathakas' of Northern temples are not mentioned at all in the Southern texts. Like the Āmalaka, the Rathakas' of Northern temples is certainly a very prominent feature distinguishing them from the Southern ones.

(13) The Northern texts generally differ from the Southern ones even in the treatment of painting and iconography (See Ch. XXX).

Thus from the comparison of various details dealt with in the works of the two schools, we cannot but be certain about the existence of two distinct schools in India from

about the sixth century A.D. We cannot, therefore, really draw a comparison between all the available texts of the Vāstuvidyā, as done by Acharya. The similarity he has shown is merely superficial, and I have already accounted for this kind of similarity. The points of similarity can only be explained by assuming what I have said before, that the works of both the schools follow common traditions which are the fundamental principles of Indian Vāstuvidyā. I have already traced the development of these two schools from age to age and have already referred to the meagre information that we have gathered of the other schools of Indian architecture and the treatises thereof, which were undoubtedly slight modifications or elaborations of the Nāgara and the Dravida schools.

Chapter XXI

THE UNDERLYING PRINCIPLES OF THE VĀSTUVIDYĀ

A study of the works on architecture, both of the Northern and the Southern schools, leads to the conclusion that architecture in India was based on several underlying principles. Havell's contention that everywhere in India, architecture followed the one Aryan tradition is, therefore, undoubtedly correct, at least so far as the canons of architecture are concerned. It was according to these principles that the regulations regarding the various structures were laid down. To modern eyes, many of these principles may appear as mere superstitions having no direct bearing on actual methods of constructions, nor having any utility whatsoever in architecture; the mystic value of the ceremonials will not appeal to the present-day world; but to the ancient Indians these principles were so valuable as to exert immense influence on their architecture for a period covering several centuries These principles, wherever followed, marked out the architecture in India as purely Indian; for it was on these that the individuality of Indian architecture rested.

These principles embodied in the various treatises may generally be said to be as regards the following matters.—

(1) The surrounding atmosphere of the structures.

(2) The quality of the soil where a building stands.

(3) The shape and other qualities of the site and the directions to which the building faces.

(4) The ground plan.

(5) The measurements to be used.

(6) The size of the various parts of a structure and the relative proportion between each

(7) The results accruing on the builder or owner of a structure.

(8) Classification of residential houses, religious structures, gateways, pillars and other various structures or mouldings.

(9) The sanitary arrangements in a house.

(10) The materials to be used.

(11) The decorative elements.

(12) The distribution of a land to its proper inhabitants and purpose.

(13) The planning of villages and towns

(14) The temples and subsidiary structures around the main shrine.

(15) The technique used in house-buildings

(16) The stability of the structures.

(17) The ceremonials and other mystic things related to Indian architecture.

(18) Strict rules of making images in painting and sculpture (See Ch. XXX).

The very first regulation in the Vāstuśāstras relates to the site on which a structure is to be raised. All the works agree in saying that the best site is one which has a vast sheet of water in front and trees and groves all around. The forts, cities and temples, all alike, should be situated in a land rich with natural scenery. This regulation undoubtedly springs from the Indians' inherent love of nature. The practical purposes served by this injunction are obvious in case of the forts. Thus Kauṭilya says: "The king may have his fortified capital in a locality best fitted for a Vāstuka (Vāstukapraśastadéśé), on the confluence of rivers, on a lake or a tank" (Book II, Chap 3). In the Śukranīti, again, the capital is enjoined to be built "on a charming level ground, having mountains not far from the place, having water-courses extending up to the sea, and having various trees and creepers abounding with animals and birds" (Chap I, 213-14). Thus even in case of forts, the purpose of the injunction is not only utilitarian but also artistic. The cities and towns also should be constructed in such places (cf. Samarāngana Sūtradhāra, Ch. 8, Verses 29-43) In case of temples, similar injunctions are found in all the treatises. The reason of this is not only artistic but also religious. A few verses quoted from Kāśyapa's work by Bhaṭṭotpala indicate it clearly: "A place where

tanks full of sweet and transparent water, thronged with birds, abound, where forests and pleasure gardens are in numbers, where trees always blossom, where swans and Karaṇḍava birds live in flocks and where peacocks dance... there the Gods always remain and enjoy pleasure." Varāhamihira further adds "The Gods come near the places which have water and gardens in them, either natural or artificial" (Brihat Samhitā, Chap 55, Verse 3). Thus temples were placed with an artistic back-ground to make the presence of Gods easy of access to the devotees. Varāhamihira's verses further prove that in crowded cities and towns where the natural scenery was not very attractive, rivers or forests were not available, temples were to be built on excavated tanks; and flower gardens were to be made to render the place beautiful and attractive to the Gods"[1].

That this principle was not a dead letter to the Indians but was followed by them is proved by the fact that the Puri and the Konarka temples, the Mamallapuram Rathas, Ellora and other cave temples all conform to this rule All ancient temples, ruined or existing, are found to have tanks near them. In this connection, Havell's remarks are quite to the point.

The second principle refers to the soil the structure is to stand upon We, therefore, find, in all the works, various rules laid down for the examination of the soil, which according to the Indians possessed various qualities The object of this examination is mainly to ensure the stability of the building and partly to classify the various classes of lands, each class being fit, according to the authors of the Śilpaśāstras, for some particular purpose or for particular classes of peoples. The examination was based on the colour, taste, smell, elevation, sound, touch, overgrowth of trees and shrubs, the quantity of water available and the fertility of the soil. This system of examining the soil prevailed in India from a very early period, as is evident from its existence in the Grihya Sūtras In the Śilpaśāstras

[1] For this point see "Notes on the Mithuna" which was published in Rupam 1926, January (Printed here as Chap XXIII).

are found prescribed several practical methods for ascertaining the best sort, the middle class and the worst class of soils. The existence of the rules of 'Bhūparikshā' in all Vāstu works proves the importance of the second principle of Indian architecture viz. that buildings must stand on a good soil as prescribed in the śāstras.

Closely related to the second principle is another which is a very striking one. While laying down the methods of examining the soil, it has been said in all the treatises that a soil having some particular smell, colour, taste etc is fit only for the Brāhmaṇas, another piece of land differing from the former in those respects is fit for the Kshatriyas and so on Thus lands are classified for the use of different classes of peoples. This system, therefore, shows that even from the time of the Grihyasūtras the Indians recognised a principle to the effect that all kinds of lands were not fit to be built upon by all the castes. In this connection it may be mentioned that this distinction between various castes as regards architectural matters is found not only as regards the soil, but also in the distribution of lands in a city, in the various sizes of buildings, storeys being limited to some particular number for each of the castes, and in various other minor details of building construction Caste, therefore, appears to have here exerted influence upon architecture and such influence was noticeable not only in the character of the soil but also in the determination of types of architecture Mr K. V. Vaze's contention that in Śilpa, "the terms Brāhmana etc , do not mean the caste but only the first class—the best" can be accepted if these terms are used as epithets of the soil etc. But in most of the verses, it is clearly said that the particular sort of land is best fitted for the Brahmins and so on Moreover, several methods also are prescribed for finding out the best soil for each of the castes. There is, therefore, no denying the fact that the caste system exerted a great influence on architectue. Whether in practice these injunctions were followed or not cannot be now ascertained but the mystic character of Indian life and the stress given to these matters in all the texts warrant us to conclude

that these rules were followed as far as was possible for them. The ideal piece of land might not always be available.

The next principle relates to the shape of the land selected for a building. The land, according to the Gṛihyasūtras, must be either a square, a rectangle or circular in shape. This principle as regards the shape of the land was also followed in the ground plan of buildings. The earliest houses in India may be surmised to have been either square, or rectangular in shape But even from the early period to that of the Brāhmanas, we find the octagonal shape being very favourite with the Indians. The Śatapatha Brāhmaṇa enjoins the Yūpas (sacrificial stakes) to be eight-sided and octagonal pillars were the most favourite motif of decoration in Indian buildings We have met with very few surviving temples the ground plan of which is octagonal in shape, but such temples are described in the texts. The Mundeswara temple at Bhabua (Shahbad dist.) of the Gupta age and the Śankarācharya temple at Srinagar (of about 700 A.D.) are octagonal. Triangular structures and structures having other odd numbers of sides were not much in use in India. All the texts refer to the square ground plan. Bhaṭṭotpala quotes several verses ascribed to Bharata Muni which describe the planning of three-sided temples. With the development of architecture, the site, the ground plan and the buildings began to vary in shape till in later texts we find references to six-sided, twelve-sided, sixteen-sided and thirtytwo-sided temples. The general principle, therefore, was to give to the structures even number of sides. Round temples have been found in India and are also described in the Śilpaśāstras. The Hoyasāla temples are star-shaped and so of many sides.

There is another matter of great importance as regards the shape in Indian architecture. Several sacred diagrams, the symbolic interpretations and mystic significance of which are still unknown to us, in spite of Mr. Havell's attempts to explain many of them, were recognised even by the architects. These diagrams, like the Svastika symbol, must have been very favourite with the Indians from the

very earliest times and are now chiefly used in preparing the sacrificial fire, according to the Tāntric form of worship. The Sarvatobhadra, the Nandyāvarta, and the Svastika figures are employed not only in the planning of towns and villages but also in planning private houses and religious structures. The Ramayana contains names of these types of buildings and all the Śilpaśāstras classify several buildings on the basis of their supposed or apparent resemblance with one or other of these diagrams These diagrams must have had some great significance to the Indians and the use of these diagrams in architecture naturally raises the question whether Indian art is always to be explained symbolically as done by Havell The answer to this, as far as I have been able to gather from the study of the Śilpaśāstras, must be in the affirmative To the Indians, architecture has, from the earliest periods, been associated with religion In building a house various religious ceremonies had to be performed in various stages of the progress of the work The precepts could not be violated, the time must not be unlucky, because such courses were likely to bring misfortune not only to the owner but also to the mason architect. The regulations should be followed as strictly as the injunctions of the religious texts That religion exerted a great influence on architecture is clearly apparent from the fact that the origin of many of the decorative elements (as on doors and on temples) (see next chapters) may be traced to religious necessity Again in many of the Tāntric works or works of the Pratisthā class also we find matters purely architectural; in fact, the Āgamas contain the Indian Śilpaśāstra, the Havaśīrsa Pañcharātra does the same, and the Purānas also refer to architectural matters in connection with the worship of the various Gods. The Indian conception of a temple as described in another chapter, again clearly and finally proves that religion was the primary thing concerned and art for art's sake was secondary with the Indians. Indian Architecture therefore, must be explained with reference to Indian religion; for, the various mystic elements

in that religion must have exerted great influence on it. Even in the Gṛihyasūtras and the Arthaśāstra, posts and gates have been symbolically represented. The great principle involved may thus be put down viz , architecture like sculputre, the images of Gods, must therefore stand for an idea, a building being but a symbol of the invisible God.[1]

An objection may be raised that this principle can be applied to religious architecture only. But it must be remembered that architecture in India attained it perfection in its religious atmosphere, civil architecture being but a shadow of religious architecture. These consideration lead to another great principle of Indian architecture, viz. that religious buildings must not be made in the same fashion as the civil ones—all ornaments and all possible varieties were allowed in case of temples, but private houses must conform to the var ous restrictions of the Śilpaśāstras Thus we find in the Śilpaśāstras, that though many of the broad features are common both to temples and private houses, there are many exceptions in cases of temples. Indians, therefore, lavished all energy and money on the construction of religious edifices Indian Temples only have survived; we do not find any old private house —temples of Bhuvanesvara and Puri and Khajuraho are still there; but where are the palaces and pavilions of the kings who erected them? The temples of Southern India still afford ample material for the study of Indian architecture but the king's palaces and court houses are known only from the descriptions in literature (See Ch. XXVIII)

It has been suggested by several scholars that with the growth of the Vāstuśāstras, when deviation from the rules was not allowed, there was a cripling of the high standard of art. This view, however, is not fully acceptable to us Firstly, it must be remembered that Vāstuvidyā did not grow up in India, as scholars previously thought, with the decline of Indian art. It has been handed down to posterity

[1] See "Symbolism of the Dome" by Coomaraswami, I.H.Q. 1938—Ī-Ś-G-Paddhati—"Symbolism of Āsana and Doors" (J.I.S.O.A 1942) by S. Kramrisch. Also see "Hindu Temples" of Kramrisch.

from a very early period, as has been shown by me in so many chapters. Secondly, the canons no doubt prevented the free play of "inspiration of the artists and sculptors" but it was only to a very slight degree. All the texts lay down that in spite of the regulations, the masons could do "Yathāruci" and "Yathāśobham". They could use their taste and likings i.e. discretion, and do 'as will make a structure beautiful'. Sense of the beautiful was never to be sacrificed The masons, however, could not deviate from rules where it is definitely mentioned that deviation will cause death or such other calamities. In spite of the regulations, there was enough scope of display of the artist's talents.

The next principle as regards the situation of a "Vāstu" is that towns, cities, houses and temples all should face exactly the cardinal points. "Diksu Sadaiva Kartavyāh na Vidikṣu Kadācana" i.e. "All buildings must face the cardinal points and not the intermediate spaces". This principle, therefore, necessitated the determination of the cardinal points before the erection of a structure; and this subject, therefore, forms a necessary chapter in all the texts on Indian architecture Dr Binode Behari Dutt's remarks that this regulation could not be strictly folllowed in cases of town-planning may also be true in cases of buildings, especially in crowded cities and towns It is interesting to find that this principle was followed in town-planning at Mohenjodaro and Harappa.

The next principle is the one relating to the ground-plan of a building or the area of a temple or a city All the texts recognise the "Vastu" i.e. the building site to be the body of a demon named "Vāstu-nara" or "Vāstu Purusa". This demon is described to have been laid low by the Gods and each of the victorious Gods pressed down a part of his body. Thus pressed, the demon could not rise up again. The Gods who occupy the body as well as the Vāstu-nara himself are to be worshipped on the occasion of building a house. The custom is as old as the time of the Gṛihyasūtras or even the Rigveda, as shown by me. From the tradition

of this demon arose the system of dividing the ground plan into several squares or parts (Padas) each being in possession of a presiding deity, occupying that part of the body of the 'Vāstu-nara'. The ground plan of a private house or of a city should thus be divided into 81 squares and that of the temples into sixty four. In most of the works of the Northern school, only these two systems of division are to be met with, whereas, in some of the later works, the squares may number as many as hundred, and according to the southern texts, the number may be 256 and a name was given to each of the thirty-two figures formed by each sort of division. E. G. Maṇḍuka, Paramaśāyika and so on. Brahmmā is said to occupy the central square in all these figures and that place is called the "Brahmma-Sthāna" This system of dividing the ground plan helped the architects in calculating the relative proportion of the different parts of a building and also in many other respects. The stone on the top of the temple (the Āmalaka) was built just above the Brahmma-sthāna on the ground-plan

The sixth principle deals with the measurements used in the construction of various structures The units of measurement are described in all the available texts The 'Angula' is the most commonly used unit in measuring the buildings and 'Daṇḍa' in measuring the villages and cities. The height, width and depth of different structures are calculated in different manners, according as a part of the height, width or depth is often left out at the time of calculation. The unit 'Aṅgula' is also of three kinds, a particular kind being used in a particular case Again the standard 'Angula' is sometimes taken to be the Aṅgula (i e. the breadth of the finger) of the master, and sometimes that of the mason. Similar also is the case with a 'Hasta' or cubit. These various units are more or less common to all the texts both Northern and Southern. (For measurement of sculptures see ch. XXX)

The Vāstuśāstras lay down fixed rules regulating the size of the various kinds of structures and the relative proportion of the size of the different parts of a structure. In

doing so, the texts generally cite the largest and the lowest possible sizes, and sometimes one or more of the intermediate ones It has already been said that in size too, the buildings of the various castes are enjoined to be different. If the proportions laid down in the treatises are followed, a single broken part of a lost structure may give a clue to the size of the whole structure This is clearly shown by the rules regarding the proportions between the temple, the images and the doors Most of the texts are nothing but the enumeration of the relative proportions between the various parts of a building These regulations, therefore, clearly indicate the great care of the Indian master-architects for making the buildings symmetrical and proportionate in their various parts

The next principle relates to classification and nomenclature of cities, villages, forts and all possible kinds of structures, civil or religious These classifications were based on various principles, such as, the size, form, decorative elements, materials, mouldings and the like Towns are generally classified according to the number and position of the streets and the gates, and were named after the diagrams to which the plans conformed In the classification of buildings too, as has already been said, these diagrams play important parts In the classification of temples the treatises of the Northern school differ in many respects from the Southern In the Northern school itself two systems at least are discernible In the later works various ways of classifications arose This system of classifying the buildings may be traced from a very early period of Indian History, as has already been shown in other chapters.

The principle of naming the various parts of a building is also noteworthy. Many of the terms resemble those of the vegetable world, while others resemble the terms of the human anatomy Sometimes the names indicate clearly some demarcating features; sometimes they are geographical; sometimes mythological and sometimes poetic. Often they indicate the great stability or other aspects of a structure. In this connection it may be mentioned that in the Southern

texts many of the names end in "Kānta" such as "Rudra-Kānta", "Vishnu-Kānta" etc. This word "Kānta" perhaps should be read as "Kāṇḍa" as many scholars contend. Whatever it might be, this sytem of adding a "Kānta" is not to be found in any of the works of the Northern school.

The next principle relates to the sanitary arrangements. The Arthaśāstra lays down several regulations for sanitary purposes Another such rule is the one prohibiting a "Vedha" in the doors The regulations as to the elevation of the soil, and the direction of the streets in a city were also meant for good sanitation of the building or the city. The rules regulating planting of various trees near a house, some being prescribed and some prohibited, must also have originated from hygienic principles.

The next great principle consists in the selection of the best materials for a construction. Elaborate rules are laid down for choosing the best wood as well as the bricks and the slabs of stone. All the works reveal acquaintance with several kinds of cement or plaster called the Bandhodaka or the 'Vajralepa' The lime plaster called 'Sudhā' is also described in many texts The sizes of bricks are described in all the works; and if the size of bricks be a criterion for the calculation of the age of a building, these Vāstuśāstra regulations afford an interesting study to the archaeologists. Regarding materials it should also be noted that there is a strong belief among the Hindus [I know it definitely among those of Bengal; and in Bihar, too, villagers still retain the prejudice against pucca-houses. Even when they build brick-houses, a portion of the house is sometimes kept covered with indigenous tiles] that brick-built houses are not auspicious for all families. In case of a member of that family erecting such houses, they apprehend a calamity in the family. This prejudice against brick and stone—built houses existed also in ancient India (See Ch. XXVIII). The prejudice against brick disappeared earlier, but against stone continued till a long period.

The next principle refers to the various decorative elements. Most of the texts agree as regards the various motives. Many of these motives were taken from the natural world, the animal kingdom, both of land and water, and also the mythological world. Several motives were recognised as especially auspicious, such as, the group called 'Aṣṭamaṅgala', the Mithuna figure and the like Scenes from mythology, fables and dramas were also prescribed All the texts, however, agree in saying that only those which produce a delightful atmosphere should be depicted Indian art is related not onlv with poetics and music but also with dancing As in the Alaṁkāra Śāstra, the Rasas also play an important part in Indian architecture The scenes depicted as decorative elements, produce various kinds of Rasas and it is, therefore, that we find that while some of the Rasas have been prescribed, others have been prohibited Again, the decorations of the houses of citizens, of those of the kings and of those of the temples could not obviously be of the same nature Some of the decorative scenes are prescribed for one while proscribed for the other.

The next principle relates to town-planning The subject itself forms an interesting study and has been well dealt with by B. B Dutt in his book ("Town Planning in Ancient India") The general principles may here be noted and some have already been noticed in the foregoing pages. It has already been stated that street-planning formed one of the most important features in a city. The walls, and towers, the fortification and ditches and the gateways were constructed on well-regulated principles. Many bye-laws were established for the constructions of the houses The whole city should have to be sanctified by the presence of the temples of various gods and godesses. The royal palace was constructed on a definite plan. Different parts of the city were assigned to peoples of different occupations and castes

As in the case of town-planning, so also in the planning of residential houses, royal houses and templs, the whole site was divided into its component squares, as described before, and each square or a part of it was enjoined to be inhabited

by a particular class of people or used for some other particular purpose. In case of private houses, each part was to be used for a particular specified purpose. In case of temples, the courtyard was sometimes decorated with temples of minor deities and the position of each of them is definitely laid down. This system must have arisen from town-planning, thus showing the influence of town-planning on architecture.

The principles regarding the technique and stability of the structures will best be understood from the detailed study of the various structures. The examination of soil and the materials is a most important matter for the stability of the houses. The various classes of plaster and cement also gave to the structure immense capacity for withstanding the ravage of wind and weather

The last principles relates to the ceremonials. The ceremonials were to be performed along with the Sthapati and the workmen on auspicions months, days and moments. This regard for the masons and the various qualifications of masons described in the texts indicate the high position held by the architects in ancient India. Offerings were paid not only to the gods presiding over the different parts of the body of the Vāstu-nara but also to others, including gods of the quarters and other minor ones. The worship of the gods of the quarters gave rise to the elaborate system of depicting their images on temples along with their Vāhanas (vehicles)

The worship of the doors evolved the elaborate decorations over them The whole temple was also worshipped, the significance of which will be shown later on. Thus, though these ceremonials appear to the modern critics as mere superstitions, a consideration of the details is absolutely necessary for the proper understanding of Indian architecture. The 'Dharma' of India cannot be translated as 'religion' as understood in other countries. All activities of the Indians together form the Indian 'Dharma'; and as such, the consideration of one branch of this activity requires the consideration of the others. Indian architecture is closely

related to the religion of the Vedas, the Purāṇas, the Tantras as well as to the various mystic rites and notions prevalent all over the country. It is on the right interpretation of the various mystic things that the solution of Indian problems depends. It must be remembered, however, that the interpretations must be, not according to our ideas, but according to what the people of ancient India thought about them, i.e. the explanations that we get in the works on Vāstuvidyā.

Chapter XXII

BRAHMANIC CONCEPTION OF TEMPLE

Ruskin, in his classification of Architecture designated one class as devotional, intending thereby to specify buildings constructed as places of worship. A temple, according to this classification, falls under the class of devotional architecture. But its Brahmanic conception is not so rudimentary, but may be properly called transcendental. A temple according to Brahmanic conception is the visible outer casement (body) of the invisible deity a visible image of which is installed in it as an emblem of the invisible spirit which pervades all nature. The temple according to this conception is not merely a place of devotion, but also an object of devotion like the image and the invisible spirit Hence the temple is regarded, like the human body, as the outer visible shape of the shapeless and its worship is performed by an act of going round it called circumambulation (Pradakṣiṇa). The next step is the worship of the installed visible image according to Dhyāna revealing its real character as an emblem of the invisible spirit which is worshipped not with any external offerings but with mental contemplation alone. According to this conception, the various parts of a temple are designated by names which correspond with the names of the various parts or the limbs of the human body Attention was drawn to this by Mr. A. K. Maitra in a paper on 'Excavation in Varendra' published in the now defunct Bengali Magazine "Sāhitya" and also in the Modern Review (1924). A text in its support was reproduced from the Hayaśīrṣa Pañcharātra quoted in the Haribhaktivilāsa. A portion of the Hayaśīrṣa Pañcharātra in an unpublished MS. in the possession of the Varendra Research Society, Rajshahi, contains the text in a dilapidated form. This text is also to be found in the Agni Purāṇa (Ch. 61, Verses 19-27) and the essential features indicated in it in the Śilparatnam.

That the different parts of a temple are still designated according to this conception by technical terms revealing analogy with the human body was ascertained by Late Manmohan Ganguli from the surviving temple-builders of Orissa and noted and illustrated in his Book "Orissa and Her Remains". Some of these technical terms were noted by Ram Raz in his celebrated essay on Indian Architecture, showing clearly that the conception was not limited to any particular locality.

This conception accounts for the peculiar architectural scheme of temple building in India for which independent evolution has been openly or tacitly acknowledged by all scholars A lavish display of ornamentation on the outer face of a temple and usual absence of decorations in its interior attracted the notice of all scholars, some of whom, mostly foreign, looked upon the outer display as unnecessary waste of expenditure as noted by Fergusson Indian art, however, found its justification in this peculiar conception To the orthodox devotee the temple is not a mere building, a pile of brick, stone or any other material but is the visible representation of the deity itself which may appeal easily to the recognition of all classes of devotees irrespective of their intellectual attainments Going round this visible deity is still performed with adequate reverence in solemn silence with the mental recitation of a mantra and after this is finished and the circumambulater is ready for entering the temple, he has to worship the image, door-keepers and the door. These ritualistic injuctions are in perfect keeping with the conception in question. It reveals a new view-point from which temple-architecture in India has to be studied.

Another more theological and symbolic interpretation of a temple is found in the Agni Purāna (Ch 102, 17ff.) In this text, a worshipper of Śiva is enjoined to identify the various parts of the temple with several things related to Śiva. Thus, according to it the worshipper should regard and contemplate the Pītha (pedestal) to be the Brahmāṇḍa along with the Earth, Pātāla, Naraka and the Lokapālas.

The Jaṃghā = the Pañchabhūtas (Earth, air, water, fire and the heaven). Mañjari and Vedikā = 4 things like Vidyā etc. Kaṇṭha = Māyā with Rudra. Amalasāra = Vidyā. Kalasa = Īśvara with Bindu and Vidyeśvara decorated with matted locks. Śūla = Half-moon and 3 Śaktis. Daṇḍa = Nāda. Dhvaja = Kuṇḍalī Śakti. It is quite likely that the decorations on the various parts of a temple were the outcome of such ideas and correspond to the things mentioned above. An investigation on this line is therefore desirable.

The texts bearing on this matter are quoted in the Appendix[1].

[1] (1) Agni Purāna—Ch. 61. 9-27 and Ch. 102.17.
(2) Haribhaktivilāsa—19.197.
(3) Hayaśirsa Pañcharātram—Mss. Ch. 39.
(4) Śilparatna—Ch. 16 114-123.
(5) Īśānaśivagurudeva Paddhati (III, p. 102 and IV, p 344).

CHAPTER XXIII

THE MITHUNA IN INDIAN ART

IN the illuminating article on the subject published in the July number of the Rupam, 1926. O. C. Ganguly has offered an explanation for the origin of the obscene sculptures found on the Hindu Temples of India. He has tried to prove that the system of depicting these sculptures was suggested to the artisans by the device of the Mithuna-figures placed on the doors as an auspicious symbol. From very earliest times, the Mithunas were curved over the doorways of temples, and Mr. Ganguly has very ably traced the development of these Mithuna-figures into the most erotic and obscene sculptures of Orissa and other places. In support of the custom, a passage from the Agni Purāna (140.30) has been quoted, which shows that the artists in drawing the Mithuna-figures were following a tradition prevalent from very early times in India As these points have created a general interest among scholars, a collection of all the available texts having some bearing on the subject will be helpful to those who may make further investigations in the line.

The age of the texts cited from the Agni Purāna can not be ascertained at present. But it undoubtedly resumes the injunctions of earlier texts. Many of the chapters in the Agni Purāṇa dealing with architecture bear a close resemblance with passages quoted in the Haribhaktivilāsa from the Hayaśīrṣa Pañcharātra. In fact, from chapter 38 of the Agni Purāna, we learn that the compiler of the Purāṇa was acquainted with that work, Hayagrīva himself being made the reciter of the following chapters. There is therefore no doubt that the injunction regarding the placing of Mithunas on doors was inserted into the Agni Purāna from the Hayaśīrsa Pañcharātra. In fact, the Saurakāṇḍa of this work, available in mânuscript form in the Varendra Research Society, Rajshahi, contains a passage similar to

the one quoted by Mr. Ganguly. This is:—"Patrabhaṅgé Samithunaiḥ Śākhādūrddhvam Vibhuṣayet". The date of the Hayaśīrṣa Pañcharātra, however, is yet unknown. Another passage exactly similar to this occurs in Varāhamihira's Bṛihat Saṃhitā, a work the date of which has been accepted by all scholars to be the middle of the sixth century A.D. In Chapter 55 on the Prāsādalakshaṇa it is enjoined —"The remaining part (of the door-jambs) should be decorated with auspicious birds, Svastika designs, vessels, Mithunas, leaves, creepers etc". This passage again though written in the sixth century, undoubtedly codifies earlier practices as Varāhamihira admits at the end of the chapter. (He wirtes "I have here told in short the features of a temple; all that was written by Garga is included herein. This subject was written by me with a full remembrance of what was written in details by Manu and others"). From this we may conclude that the texts relating to the Mithunas on the door-ways, contain but the traditions of early Indian Architecture.

The next point about the Mithunas noted by Mr. Ganguly, is that sculptures show that Mithuna did not mean human couples only, but also of animals, birds, serpents etc. Two passages in the Samarāṅgaṇa Sūtradhāra (Chap. 31-126, 134) clearly enjoin the figures of monkey couples and of couples of elephants playing in water to be used in decorating the buildings called the Dhārāgṛiha or Bathrooms. This shows that the animal-couple motif was a favourite one with the Hindus

The next suggestion of Mr Ganguly as to the motive of placing these figures on the temples has also been supported by him by an ancient text regarding the choice of the land best suited for a temple. The passage referred to by him occurs in the Haribhaktivilāsa as a quotation from the Hayaśīrṣa Pañcharātra. Similar passages have been traced in the Saurakāṇḍa manuscript of that book (Ramanté Puruṣāḥ Yatra Yoshito Dhenavastathā Sā Praśastā Tu Sarveṣām) and the Samarāṅgaṇa Sūtradhāra (Chap. 8, 43) :—

"Yā Vāhanānām Sukhadā Mithunānām ratipradāḥ
Purārtham Tāḥ Praśasyanté Bhumayo Janitaśriyah".

The psychology of picturing, on the shrines, the effigies of loving couples in order to meet the difficulty of getting a piece of land where couples lived and loved each other, may be supported by ancient texts. From the earliest times, from the time of the Grihya Sūtras, Indians were very particular about the selection of the land for raising a structure. All works on architecture contain long chapters on the Bhūparikshā or the examination of the soil In these chapters, lands are directed to be examined as regards their colour, taste, fragrance, fertility, elevation and even the surrounding scenery. This shows the importance attached by the Indians to the site of a building. A passage from the work of Kāśyapa, a predecessor of Varāhamihira, is quoted by Bhaṭṭotpala, according to which 'A place where tanks full of sweet and transparent water, thronged with birds, abound, where forests and pleasure gardens are in numbers, where trees always blossom, where swans and Karaṇḍava birds live in flocks and where peacocks dance—there the gods always remain and enjoy pleasure". The best place for raising a temple was, therefore, on the sea-shore, on a river, on the skirt of a forest and on a hill beside a spring The Puri and the Konarka temples, Ellora and other caves all prove that the Indians always followed this practice in building a temple. Varāhamihira (Brihat Samhitā 55 3) while discussing the subject adds "The gods come near the places which have water and gardens in them either natural or artificial" It is therefore evident from this passage that in crowded cities and towns where the natural scenery was not very attractive, where rivers or forests were not available, temples were built on the bank of a tank; and flower gardens were made to render the place beautiful and attractive to the gods. All ancient temples, ruined or existing are thus found to have tanks near them. The practice of artificially making a site suitable for making a temple was thus a very early custom with the Indians. It is therefore very probable that the artists did

not stop with merely the excavation of a tank or the foundation of a garden by the side of a temple, to make it attractive to the gods, but also carved on the temples themselves scenes from nature. Creepers and foliages, peacocks and swans, herds of elephants and monkeys are the favourite decorative elements of all the temples found in India. A description in the Samarāṅgana Sūtradhāra (Chap. 34, 30-31) of the figures to be carved on buildings points to these facts. This tendency of making the site attractive according to the directions of the Śilpaśāstras is thus apparent from the texts as well as the decorations of the temples themselves. The existence of the figures of couples—human or of animals, may thus be explained from the passages referred to above.

Actual texts recommending the placing of couples on the body of the temples are very meagre in number. Only one text has been traced in the Samarāṅgaṇa Sūtradhāra a book of the 11th century A.D. It is —

"Ratikrīdāparā Nāryyo Nāyakastu Yadricchayā
Kimcit Pratanubhir Gātraiḥ Kāryāh Suratalālasāh".
(Chap. 34, 33-34)

Several other passages in this connection should be discussed here. The Nārada Śilpa (Ch. 66) enjoins that the chitraśālā walls etc. should be decorated with figures (or paintings) of Devas, Gandharvas and Kinnaras engaged in sports (Vihāra) in various 'Samayas', which may mean their amorous sports in various styles (or postures?). The Mayamatam (Chap. 18, 111) and the Śilparatnam (Chap 46, 9-10) enjoin that "On the habitations of human beings should not be figured the scenes of wars, death or sorrow or legends about gods and Asuras or nude figures and the Lilā or amorous sports of the ascetics. On other buildings, made for other purposes, whatever is desired may be done." These passages show that on temples there could be depicted the figures on the above subjects. The word Tapasvililā is most significant. Does it mean the figures of ascetics engaged in amorous sports? A similar passage in the Suprabhedāgama (V.R.S. copy) may be taken to point to

that meaning. In the 30th Paṭala, it is said—"Particularly (one should make) the figures of Śiva's sport (Śivakrīḍā), of Hari's sport (Harikrīḍā) and sport of the ascetics (Tapakrīḍā)". We meet in actual sculptures the figures of Śiva engaged in amorous sport with his consort and scenes from the love story of Rādhā and Kishna are innumerable. (Also compare I-Ś-G-Paddhati, Paṭ. 32, Verse 24, where representation is enjoined, on Manḍapas, of Rudra's avatāra, Krīḍādi and Kathārūpāni). Śivakrīḍā and Harikrīḍā therefore undoubtedly refer to such sculptures. The mention of Tapakrīḍā along with Śiva's and Hari's sports raises the suspicion that the word Krīḍā in the former case also means amorous enjoyments. In many of the erotic scenes on the Puri, Bhuvanesvara and Konarka temples the male figure is that of an ascetic with a head shaved all over and a ring of beads in one hand. If all the male figures in such sculptures may be found to be of ascetics alone we may safely conclude that they were curved there according to the above texts. The above passages may thus give a clue to the existence of the obscene figures on the temples of India. But it is difficult to understand why the ascetics, famous for their religious pursuits, should have been made to perform such repulsive acts.

It may be noted here that in Orissa, the priests account for these sculptures by saying that they will prevent thunder from falling on the temple. This theory is quite consonant with what has been written above All the Śilpa texts enjoin that auspicious designs on buildings and strict following of the injunctions will give stability to structures, and that deviations will be disastrous During the ceremonials, mantras are uttered praying Indra to save the building. Every matter in connection with a building is, therefore, designed to protect it from dangers and calamities

The installation of an image on the pīṭha (pedestal) is regarded as the union of that god with his Śakti (See Ch. XXX). Similarly the raising of a temple on the Piṇḍikā (pedestal) which is its Śakti (of the temple or the temple—Puruṣa as noticed in Ch. XXII texts) is the union of Puruṣa

with Prakṛiti. The Mithuna figures might also thus be taken to represent this union of the Puruṣa with Prakṛiti. But in that case, the Mithuna figures ought to have been of the Devas only. Other explanations offered do not conform to the traditions incorporated in the Vāstuśastrās.

Chapter XXIV

THE DOOR IN INDIAN ARCHITECTURE

Doors form an important feature in all classes of buildings and the gradual development of its characteristics in India is an interesting matter for investigation From the earliest times, the scriptures and the treatises on architecture laid down regulations as to the position, the dimensions and the relative proportions of the different parts of the doors, with a view not only to make the habitation suitable for its purpose but also to make it beautiful, and healthy and conforming to the mystic ideas of the Indians connected with architecture.

The earliest regulations about doors are to be met with in the Grihya Sūtras The Gobhila (IV. 7. 15-20) and the Khādira (IV 2 14-15) Grihya Sūtras lay down rules as to the cardinal point which the door is to face, as different cardinal points were believed to bring different results for the builder Thus "one who is desirous of fame or strength, should build his house with its door to the east, one who is desirous of children or of cattle with its door to the north, one who is desirous of all these things with its door to the south. Let him not build it with its door to the west and with a back door" (Gobhila Grihya Sūtra) These traditions about the effects of the different positions of the doors were handed down to posterity and the rules were highly elaborated in the Purānas[1] and the later Śilpaśāstras (Treatises on architecture etc.)[2] Houses were classified and appropriate names given to them according as the door faced one or more of the cardinal points. Thus according to the Matsya Purāna (Chap 254, 1-4) a house without a door facing the west i.e. having doors facing only the north, east and south, was called Nandyāvarta, that without a

[1] Matsya Purāna, 255 7-9, Agni, P. 105 25ff, Garuda, P. 46. 31-35

[2] Garga, quoted by Bhaṭṭotpala; Bṛhat Saṃhitā 53. 70-75; Viśvakarma Prakāśa, 7. 66 ff; Mayamatam and all other Southern texts This chapter is based on Northern texts only.

door facing the south Vardhamāna, without a door facing east Svastika and without a door facing the north Ruchaka.

Of the other rules citing the defects to be avoided, the more important ones are those evidently aimed at the avoidance of obstruction to light and air. These obstructions are known under the technical names of Vedha and each of the Vedhas, in case it happens in the construction of a door, was believed to bring a calamity to the master of the house, either to himself or to his sons or wife Some of these obstructions are a road, a tree, a corner, a well, a pillar, a water-channel, a temple and so on The list was more and more enlarged in later[1] times and assumed too great a form to be enumerated here. But as it is indeed difficult to avoid these obstructions in crowded cities and villages, so in such cases a little distance from the object of obstruction was recommended for the situation of the door; the irreducible minimum has been fixed at twice the height of the house and all authorities are found to be unanimous on this point. The rule says "the distance of twice the height being left (from the door to the Vedha), there occurs no Vedha"[2].

Very few specimens of civil architecture of ancient India now survive and therefore, the regulations found in the treatises about the doors of private buildings can hardly be verified. Such rules are to be met with almost in all books dealing with architecture[3]. The dimensions prescribed for the height and width and the relative proportion to be observed between them and the other parts of a door have been described in a very round about way in the Bṛhat Samhitā. The height is called Ucchraya, the width Vishkambha or Pṛithutva, and the depth Vāhulya or Ghanatva The verses have been formed into several formulas and are given below in the form of a table:—

[1] Matsya Purāna, 255 10-14, Agni P., 104 31-34, Bṛhat Saṃhitā, 53 76-78; Viśvakarma Prakāśa, 7. 72 ff

[2] Matsya Purāṇa, 256. 14; Agni P, 104. 34, Bṛhat Saṃhitā, 53. 76; Hayaśirṣa Pañcharātra, Saura Kāṇḍa.

[3] Matsya Purāṇa, 254, 42; Bṛhat Saṃhitā, 53. 24, Viśvakarma Prakāśa, 2. 162.

I. Doors of the houses of kings and the commanders.

(a) Height of the door = the prescribed width of the house[1] reckoned in Aṅgulas $+ \frac{\text{width of the house}}{11} + 70 = 108 + 10 + 70 = 188$ Aṅgulas = about 8 cubits.

(b) Width of door = ½ its height = 4 cubits approximately.

(c) Depth of the jambs = the height to be reckoned in Aṅgulas = 8 Aṅgulas.

(d) Width of jamb $= \frac{\text{height of door} \times 7}{80} = \frac{188 \times 7}{80} = 16\frac{1}{2}$ Aṅgulas.

II. Of the houses of Brahmins etc.

(1) Width of door $= \frac{\text{prescribed width of house}^2}{5} + 18 + \frac{\frac{\text{width of house}}{5} + 18}{8} = \frac{23}{5} + 18 + \frac{\frac{23}{5} + 18}{8} = 6 + 18 + 3 =$ 27 Aṅgulas.

(b) Height of door = 3 width = 81 Aṅgulas = about 3½ cubits.

(c) Depth of jamb = height of door reckoned in Aṅgulas = 3½ Aṅgulas.

(d) Width of jamb[3] $= \frac{\text{height of door} \times 7}{80} = \frac{81 \times 7}{80} = 7$ Aṅgulas.

The depth of the lintel according to Varāhamihira, as explained by Bhaṭṭotpala is one half times more than that of

[1] Bṛi Sam., 53 4-5, Mat P., 254. 15 and 18-19

[2] Bṛi Sam., 53. 12-13, Mat P., 254 28.

[3] The Viśvakarma Prakāśa clearly states that the dimension of the door of a king's and a commander's house should be 188 Angulas, and that of a Brahmin's house 27 Angulas, meaning thereby the dimension of the height and the width respectively The width of the jambs, however according to Viśvakarma Prakāśa, should be as many Angulas as the height of the door together with 12 Angulas more. The text in the Viśvakarma Prakāśa about the dimension of the depth of the jamb as well as the whole section dealing with these subjects in the Matsya Purāna seems to be corrupt. The correct version seems to have survived in the Bṛihat Saṃhitā.

the jamb. But as in the temple doors, the natural depth ought to be equal to that of the jamb, otherwise the frame can hardly be well-joined. So it seems the commentator has erred in taking "sārdham" to mean "one and a half". If we take "sārdham" to mean simply "with", the verse appears to be correctly explained and the depth of the lintel is thus meant to be equal to that of the jamb.

A comparison of these rules with those regarding the temple-door will show that they vitally differ in several respects. Whereas all the texts prescribe a height twice the width for the temple door, both the Viśvakarma Prakāśa and the Bṛihat Samhitā prescribe for the doors of domestic houses a height equal to three times the width. A height twice the width (i.e. 54 Aṅgulas) would have made the door too low for daily use and so there can be no doubt about the correctness of the reading "trigunam" in connection with the same. Bhaṭṭotpala also accepted the reading. But in spite of that small and disproportionate size, the chief door is enjoined by all the authorities to be highly decorated with auspicious designs[1] e.g. a pitcher, fruits, such as, śrīphala, leaves, creepers, and goblins, to which are added by Bhaṭṭotpala the figures of lions, tigers, swans and other birds. This system of carbing figures on the door-jambs is still followed in many parts of India, as a plain door was proscribed as inauspicious.

In the Śilpasāstras, the Purāṇas and some of the Tantras are laid down elaborate rules for the doors of the temples and other devotional structures. Several verses containing these regulations and ascribed to Kāśyapa, are found quoted in Bhaṭṭotpala's Commentary. The Agni Purāṇa, the Garuda Purāṇa and the Hayaśīrṣa Pañcharātra appear to have preserved a tradition different from those in the other books but not quite unknown to them.

All the books agree as to the position of the doors. They must face the exact cardinal points and must not be turned to any of the corner directions[2] and should be placed in the

[1] Bṛhat Saṃhitā, 53. 82, Matsya P., 255. 19.
[2] Agni Purāna, 104. 24.

middle part of the side-walls i.e. euqal parts of the walls should be left on two sides of them[1]. The width of the door and the proportion it bears to the side of a temple have been described in three different ways. They are:—

(1) The whole ground plan of the temple being divided into 64 squares, 8 being on each side, the Garbha (sanctum) should be made of the 16 inner squares relating each of its side equal to half the width of the temple; in the middle of this side and covering its one-fourth by the width should be the door entering into the shrine. Thus one-eighth of the temple-side represents the width of the door[2].

(2) The Garbha should be divided into 5 equal parts[3] and one-fifth of it should represents the width of the door. In this case the width of the door becomes one-twentieth of that of the temple-side, for the width of the Garbha side is prescribed here as being one-fourth the whole temple[4].

(3) The rule making the width of a door one-fourth the side of a temple is found in a Ms of the Hayaśīrsa Pañcharātra but the reading may be corrupt.

The height of the door is generally enjoined as being twice its width; and 10 dimensions covering the possible maximum and the minimum have been definitely laid down. Of them, those with a height of 150, 140, 130 and 120 Angulas are the best ones, three are said to be of the middle class and the minimum is laid down as 80 Angulas[5]. The Agni Purāna and the Havaśīrsa Pañcharātra say that the height may be twice the width or may be 4, 8 or 10 Angulas more[6]. The height again should be such as to make a view of the idol inside possible from a distance So the height of the image should together with its pedestal be made

[1] Brihat Samhitā, 56 10, Visnudharmmottaram, 88. 2.

[2] Matsya Purāna, 270. 18, Brihat Samhitā, 56 12; Visnudharmmottaram 88 7; Kāśyapa quoted by Bhattotpala

[3] Garuda Purāna, 47. 9; Matsya Purāna, 269 5-6.

[4] Garuda Purāna, 47 6, Matsya Purāṇa, 269 1

[5] Matsya Purāna, 270 22-24; Agni Purāna, 104. 26 and Haya. P.

[6] Agni Purāna, 104 27-28

equal to the opening less by one-eighth. This fixed proportion of the height of the image with that of the door and of the door with that of the temple enable us to guess the dimension of the one from the other.

The jamb, the lintel and the sill are to be in width equal to a quarter of the height and their depth equal to a quarter of the width of the door i.e. half their own width[1]. All the texts are unanimous on this point.

The next rule concerned is about the form of the jambs and the lintel It is laid down that the jambs should never be a single plain piece but should comprise of 3, 5, 7 or 9 parallel perpendicular sections, each adorned with various sculptures on them. A quarter of the jamb from down upwards is reserved for the insertion of the door-keepers' image, which differ according to the nature of the main deity enshrined. The rest of the jamb should be decorated with auspicious elements such as birds, trees, Svastika designs, vases, human pairs, creepers, foliages, goblins (Bṛihat Samhitā), aquatic animals, lotuses, swans (Kāśyapa), and the Avatāras of Vishṇu in a Vishnu temple (Hayaśīrsa Pañcharātra quoted by Haribhaktivilāsa). Besides these are recommended the images of the Navagraha (nine planets), Ganeśa (Kāśyapa), and the figure of Lakshmī as being bathed by two elephants (Hayaśīrsa Pañcharātra quoted by Haribhaktivilāsa), which are found, in the existing specimens, on the lintels only.

The names of the Dvārapālas or the door-keepers are enumerated in the following lists:—

(1) Bhaṭṭotpala's commentary on the Bṛihat Samhitā mentions, as the examples of the Dvārapāla, the names of Nandī and Daṇda.

(2) Hayaśīrsa Pañcharātra (Saura Kāṇda) makes Daṇḍa and Piṅgala the right and the left Dvārapālas evidently of the Sūryya temples.

(3) Chaṇḍa and Prachaṇḍa with Danḍa (staff) in hand and in form similar to Vishnu, mentioned as the two

[1] Dr. Acharya here misinterprets the word 'Bāhulya' (See Appendix D).

Dvārapālas evidently of Vaishṇava temples in the Hayaśīrṣa Pañcharātra quoted by Haribhaktivilāsa.

(4) The Meru Tantra, quoted in the Puraścaryārṇava enumerates the following Dvārapālas of each of the Pañcha Devatās viz. Śiva, Vishnu, Ganeśa, Sūryya and the Śakti goddess:—

I. Of Śiva

(i) Nandī[1] and Mahākāla on the western door.
(ii) Ganeśa and Bull on the northern door.
(iii) Bhṛingiriṭa and Skanda on the eastern door.
(iv) Umā and Chaṇḍeśvara on the southern door.

II Of Vishnu

(i) Nanda and Sunanda on western door.
(ii) Chanda and Prachanda on northern door.
(iii) Vala and Pravala on eastern door
(iv) Bhadra and Subhadra on southern door.

III Of Ganeśa

(i) Vakratuṇḍa and Ekadanta on western door.
(ii) Mahodara and Gajānana on northern door.
(iii) Lambodara and Vikaṭa on eastern door.
(iv) Vighnarāja and Dhūmravarṇa on southern door.

IV-V. Of Sūryya and the Śakti Goddess

The following seven Yoginīs with Śrī:—
(i) Brāhmī and Māhesvarī
(ii) Kaumārī and Vaishnavī
(iii) Vārāhī and Indrāṇī
(iv) Chāmundā and Śrī

An attempt may now be made to see how far the conventional rules as laid in the above treatises on architecture were followed in the construction of the doors of the existing Indian devotional buildings. The first thing that strikes us on the examination of the existing specimens is the uniform character of the doors throughout the different parts of

[1] The reading in the published text is "Nadī" which is evidently a mistake for Nandī

India and in buildings of the different sects. The doors of the Buddhist and Jaina caves of western India, of the Jaina temples at Rajputana and of the Hindu temples of Kashmir, the Central Provinces and even of Magadha, Orissa, and Bengal are so much alike in their main features as can hardly be distinguished as to the locality or the religions to which they belong. This is true of the earliest caves as well as of the latest Hindu temples of thirteenth or fourteenth century A.D.; and thus points to the high antiquity of the traditions relating to the forms of the Indian doors and the deep-rooted custom they gave birth to. The Buddhist cave at Karle dating from the first century B.C. has on both sides of each of the doors a male and a female figures in pair (Mithuna) occupying the position of the Dvārapāla and reminds us of the similar figures on the Hindu doors. The Ananta Gumphā on the Khanḍagiri in Orissa dating from about the same period has over one of its door-ways the figure of a standing Lakshmī with two elephants pouring water over her head. The Nasik Gautamīputra Cave of the second century A.D has in the side-pilasters of the central door six compartments each filled with two males and a female, and on each side is a Dvārapāla holding a bunch of flowers. The Makara's head that occurs on the lintel is further decorated with lotuses and garlands. All the features thus noted in the doors of the Buddhist caves of the early period are of most common occurrence on the doors of later Hindu temples.

It is in the existing relics of buildings of the Gupta period that one may notice all these features of a developed Indian door. Cunningham, in reviewing the temples of the Gupta period laid down as two of the characteristic features of this period the following points, viz. (1) Prolongation of the head of the doorway beyond the jambs and (2) existence of the figures of Gaṅgā and Yamunā guarding the entrance-door[1]. These two features were common both to the Hindu and the Buddhist temples of India. The earliest figures of Gaṅgā is

[1] Cunningham's Arch. Surv. Rep, Vol. IX, pp. 42-44.

perhaps to be found on the brackets discovered at the Kankali mound at Mathura and perhaps belongs to 2nd century A.D. (Plate XXXVI, Figs. 1, 2—Smith 'Antiquities of Mathura'). In the Ajanta Cave No. 5 the two female figures standing on Makaras on the top of the door project beyond the line of the general ornamentation, giving it considerable breadth and dignity. The same arrangement slightly modified and not on so extended a scale occurs in Caves No. 22 and 24 and at Elura Cave No. 6. The same figures, but enclosed in the ornament, occur in Caves No. 7 and 15 at Ajanta and may generally be considered as most characteristic of the style. They possibly, as in Hindu sculpture, represent the river goddesses but it is not easy from their emblems to discriminate whether both are intended for the same or represent different rivers[1]. Thus these female figures on Makaras in the Buddhist cave doors seem to be but a modification of the Hindu system of representing Gangā and Yamunā on the doors of the temples. The origin of these two figures cannot be traced to the regulations in the available treatises on architecture but may be explained by the directions in the Tantras[2] regarding their worship at the time of worshipping the door. Thus the Meru Tantra and the Săradā Tilaka (Chap. IV) while citing rules for the worship of the door, say that Gangā and Yamunā should be worshipped along with the other gods and goddesses named. In the Agni Purāṇa (Chap. XXI and XXXIII) we find the worship of these two goddesses along with Śrī on the door directed to be performed before one worships Vishṇu or Siva. The Manu Saṃhitā enjoins the worship of Srī on the upperpart (ucchīrṣaké) of the house (Manu Saṃ. III. 89). The I-Ś-G-Paddhati also enjoins the worship of the goddesses, at the time of worshipping of the door. These directions therefore may be considered to be the true source of the custom under discussion. The figures of Gangā and Yamunā on doors are so very common that

[1] Arch. Surv. West Ind., Imp. Ser., Vol. IV, p 51

[2] Tantrasāra—Kalāvatīdikshāprayoga
Meru Tantra, Sāradā Tilaka, I-Ś-G-Paddhati III 13. 25.

among their find-places we may mention but a very few ones, e.g., Sanchi, Kashmir, Aihole, Kharode, Pujaripalli, Bhuvaneśvara etc.[1]

Besides these elements there are others which are common to the Buddhist and the Hindu doors. The division of the jamb into several sections decorated with pairs, creepers and foliages, the Makara, animals, and the like and the whole door frame being encircled by an oblique lotus petal border are exactly what are found enjoined in the treatises and followed in the construction of the Hindu temples. The lintel of the Ajanta Cave No 5 is divided into 9 panels with the figure of a seated Buddha in the centre and thus reminds one of the similar position of the Navagraha in panels or of the small figures of the main deity or his Vāhana which are generally placed by the Hindus over the lintel indicating the nature of the image inside the shrine.

Of the Dvārapālas, named in the above list, some may undoubtedly be identified with their figures in the existing specimens Thus in the Śiva temples at Orissa, Nandī and Mahākāla invariably stand as the door-keepers on the door-jambs[2]. In the Vaiṣnava temples at Bhuvaneśvara and Puri we find on the jambs two four-handed figures exactly similar to Viṣnu himself These two may be identified with Chanda and Prachaṇda, the two door-keepers of Viṣnu mentioned in the Hayaśīrṣa Pañcharātra and the Meru Tantra.

The Navagraha images on lintels of temple doors was a fairly well-established architectural design in the Gupta period. Cunningham found a slab containing their figures at Bhitari[3] which might well have formed the part of the lintel of a Gupta temple. They are aslo to be met with in several

[1] For these figures the paper in the Rupam by Mr. A K. Maitra may be consulted.

[2] In the book on Orissa and Her Remains, Mr. M. Ganguly was unable to find any text associating Nandī with Mahākāla. The above list will show that they have been named together in the Meru Tantra. The Agni Purāna (Ch. 21) also does the same thing Also see Mayamatam (XXIII. 50)

[3] Cunningham, Arch. Surv. Rep., Vol. I, p. 94 ff

temples at Osia in Jodhpur[1] and almost invariably in the temples in Orissa. The figure of Ganeśa is found over the entrances of the temples at Gowror[2], of the Parasurāmeśvara and some other temples at Bhuvaneśvara and in a temple at Osia. The figures of Lakshmī, already referred to, are also to be met with in the Buddhist gateways and caves at Aurangabad, some of the Aihole temples, the Elura Kailasa temple, the Liṅgarāja and some other temples at Bhuvaneśvara.

Figures of the main deity or its Vāhana were inserted from a very early time to indicate the nature and creed of the image inside. Thus the Gupta temple at Bhumara[3] has a beautiful bust of Śiva on its door lintel. Even in a later age a Śivaliṅga occupied this position as may be noticed in a lintel collected by the Varendra Research Society [No. $\frac{I(b)15}{12}$] from Mandoil in the district of Rajshahi The lintel over the doorway of the Laksmana temple at Sirpur in the Central Provinces[4] has on it a large figure of Vishnu reclining on the folds of the serpent Śesa Down the two other sides of the door on the jambs are the figures of several Avatāras or incarnations of Vishṇu, a feature enjoined by the treatises[5]. At Kharode the lintel contains a little image of Vishnu seated on Garuda Similar image of Vishnu on Garuda are found in the Vindhyavāsinī temple at Tumain in the Gwalior State, perhaps dating from the ninth century A.D [6] and in several temples at Osia. They are also common in the temples at Aihole Thus Prof D. R Bhandarkar writes[7], "The characteristics of the door frame of this period may now be noted The first point that attracts attention is that very often on the innermost and sometimes on the second moulding we find Nāga figures with hands folded, their

1 Arch Surv Rep, 1908-09
2 Cunningham, Arch Surv Rep, Vol VII, p 13 ff
3 Mem. Arch Surv, No 16, plate 3(b)
4 Arch. Surv Rep, 1909-10
5 Hayaśirṣa Pañchāratra quoted by Haribhaktivilasa, Chap 20
6 Arch Surv Rep, 1918-19
7 Arch. Surv. Rep, 1908-9, "Temples at Osia"

snake tails follow the side of the lintel, in the centre of which a Garuḍa is found who holds the ends and who sometimes carries a figure of Vishnu. Another moulding is broken off into a number of panels usually containing pairs of lovers. To the right and left at the lower corner of the door-way invariably stand the two figures of Gaṅgā and Yamunā. In the Cave temples these goddesses are generally sculptured at the top of the door jambs but in later times i.e. from the seventh to the tenth century, they come to be figured at the bottom. After the tenth century they almost entirely disappear. These characteristics are met with not only in Rajputana but also in Central India and the Central Provinces", fairly indicating their universal adoption.

Of the minor decorative elements, the auspicious vase with foliages on it occurs on the lintel over the doorway of a small temple at Aihole. The lotus and other creepers are almost universally employed, as also the flying figures. The intricately coiled figures of serpents are found at Osia and at Puri and Konarka in Orissa. This custom was not unknown in Bengal as may be noticed on a door recovered from the ruins of Bangaḍ and preserved in the Rajbari at Dinajpur Figures of animals such as lions, elephants, goats and of birds such as swans etc. are among some of the most common designs employed. Miniature temples and cornices are aften found to decorate the jambs and the lintels of the doorways.

The division of the door-jambs into several perpendicular sections, as prescribed in the Śilpaśāstras, has already been shown as a common feature in the Buddhist caves. In the Elura Cave No. 6 the jamb is composed of three such sections; in some of the Ajanta Caves e.g No. 6, the Indrasabha at Elura and the Salsette Cave they have five, in the two-storeyed cave below Meguti at Aihole are found seven; while the Ankai Tankai Jaina Cave No. 1 has nine sections in the door-jamb. Of the Hindu temples, three sections are met with in a Śivalinga temple at Elura, several temples at Bhuvaneśvara and in many other temples. Five sections are found in the doors of some of the Gupta temples e.g. at Sirpur

and in many late temples such as, at Aihole, Osia, Bhuvaneśvara and so on. The door in the Bhogamaṇḍapa of the Jagannatha Temple and a surviving one at Konarka[1] consist of seven most beautifully decorated sections. The examples illustrating the regulations of the architectural treatises in this behalf are too numerous to be quoted at length.

In conclusion it may be shown that the sizes and proportions prescribed in the treatises about the doors and its different parts are found to have been more or less followed in many of the existing doors. As a very few ones have been thus examined, the following list may be of some interest as a preliminary attempt for further investigation.

I. Buddhist Caves

1. Nasik Gautamiputra Cave —
   Width of the opening of the door = ½ (its height + the first moulding of the lintel)
2. Ajanta Cave No. 5; shrine door in the lower storey.—
   Width of opening = ½ its height
   Width of the jamb = ¼ the height of the opening
3. Ajanta Cave No. 5·—
   Width of opening = ½ its height
   Width of the jamb = ¼ the height
   Width of the whole door-frame at bottom = height of the door frame excluding the sill
   Width of the frame at the top = height of the whole door frame including the decorative piece above lintel.
4. Ajanta Cave No. 4—Hall door —
   Width of the opening = ½ its height
   Width of the jamb = ¼ the height of the door including lintel and the architrave above
   The door keeper's height = ½ the height of the door.
5. Ajanta Cave No 1—Hall door.—
   Width of opening = ½ (height of opening + the height of sill)
   Width of jamb = ¼ (height of opening + sill)

[1] Orissa And Its Antiquity, R. L. Mitra, Vol II, plate.

Width of the whole door frame = height of it
Height of door keeper = ¼ height of the jamb on which it stands.

II. BHUVANEŚVARA TEMPLES

1. Southern Door in the Jagamohana of the Paraśurāmeśvara temple.
   Height of door = 4′ 10″
   Width = 2′ 6″
   Width of jamb = 11½″
   Depth of jamb = 10″
2. Western Door of the same.
   Height of door = 5′ approximately
   Width of door = 2′ 7″
   Width of jamb = 1′
   Depth of jamb = 1′
3. Door of the Jagamohana of the Mukteśvara temple.
   Height of door = 5′ approximately
   Width = 2′ 5″
   Width of jamb and lintel = 1′
   Depth of above = 1′

Note. Here the width of the jamb is approximately one-fifth the height of the opening and not one-fourth as prescribed.

III TWO DOORFRAMES IN THE INDIAN MUSEUM, CALCUTTA

1. No. MK4, 1848.
   Height of opening = 5′ 2″
   Width of opening = 2′ 8½″
   Width of jamb = 1′ 4½″
2. No B G. 89(a)+(b)+88 B.G.
   Height of opening = 4′ 11″
   Width of opening = 2′ 5½″
   Width of jamb = 11½″
   Thickness of jamb and lintel = 7″

The above list will show that in all cases the proportion set by the treatises were approximately followed. The discrepancy found at Bhuvaneśvara and also expected in many

others may be explained by the fact that the date of the above texts and the locality of their use are not defintely known, and the specimens examined above might well have followed some other texts now unknown, for many such are indeed lost to us perhaps irrevocably. A further investigation is thus necessary to complete the enquiry which only will enable us to generalise the regulations of the architectural treatises If the exact dimensions of the door or between the door and the image or the temple side may thus be calculated, the door jamb or a lintel or even a fraction of it will enable us to calculate the height of the image, or an image or any part of it will enable us to calculate the dimensions of the door as well as of the temple

CHAPTER XXV

BRICKS IN THE VĀSTUŚĀSTRA

MANY of the works on Indian architecture have given dimensions of bricks and the methods of their construction. We want to show here some of these references and draw a few conclusions from them. Scholars have said that size of bricks does not always determine the age of a structure But it will be shown here that though size may not give any clue to the date, the proportion between the length, breadth and height of Indian bricks may suggest many things. Specially the proportion as laid down in the various texts on Vāstuvidyā is an interesting study which may itself be further intensified by scholars.

The works containing this matter may be divided into three groups.—

(1) Those works which prescribe the largest dimension of bricks.

(2) Works prescribing smaller size.

(3) Works laying down various sizes and proportions and are often confused in doing the same.

In the first group I have placed the Viśvakarma Prakāśa, the Viṣṇudharmmottaram, Hayaśīrsa Pañcharātram, the I-Ś-G-Paddhati and the Atri Saṃhitā. It should be noticed that the first mentioned work is certainly, according to my opinion, a very old one. The other books, though perhaps late compositions, contains old texts. Moreover it will be noticed that except the first work of the group all others are mainly religious in character. This further supports the view explained by me before that oldest traditions of Indian architecture are to be found in the religious works and later Śilpa works generally refer to later customs (Ch. XIII). These will be clear from the dimensions in the first group. According to the

(1) Viśvakarma Prakāśa bricks will be $18'' \times 18'' \times 6''$

(2) Viṣṇudharmmottaram ... $18'' \times 9''$ (or $18''$) $\times 4\frac{1}{2}''$

(3) Hayaśīrṣa Pañcharātram (Saurakāṇda) 18″ × 9″ (or 18) × 3″

(4) I-Ś-G-Paddhati (a) 18″ × 9″ × 6″

or

(b) 9 × 4½″ × 2¼″ and other two dimensions in Aṅgulas (c) 10 × 5 × 2½

or

(d) 8 × 4 × 2

(5) Perhaps also Agni Purāna (See texts below)

(6) Atri Samhitā 18″ × 9″ × 4½″

or

18″ × 18″ × 9″

In this group, the first thing to notice is that the first three books allow 18″ length The I-Ś-G-P also in one place contains the same size; but in another place recommends shorter sizes which we shall find also in the second group below. It thus gives various dimensions, which we have said must be the latest stage in the evolution of these rules. The work, undoubtedly a religious one, contains an earlier tradition but at the same time attempts a conciliation of the old one with existing circumstances, as this and other Āgamas do in the matter of temples as well (See Chap XV).

This 18″ length prescribed for bricks undoubtedly indicates that this was one of the earliest sizes of bricks in India. This is not only to be inferred from what has already been stated above but also from the fact that the earliest bricks discovered in India are almost of the same size. The Harappa bricks and the Maurya bricks testify to it The mud bricks at the Nal cemetery and Nundara measure 21″ × 9″ × 3½″ and 21″ × 10″ × 4″ respectively, at Nal 23″ × 9″ × 3¾″, at Kulli 19″ × 10″ × 3″ and at Dabar Kot 21″ × 10″ × 3″. (Bull Arch. Survey, Ancient India, No 1, 1946). These sizes are larger than those mentioned before. It might be due to the fact that they were unburnt (See Mānasāra, below). Bricks of about 150 B.C. measuring 17″ × 11″ × 1¾″ were discovered at Patna (Ind. Archaeology, 1955-56). At Navasa

(Ahmednagar) bricks discovered measure 23″ × 10″ × 3″ (Ind. Archaeology 1955-56). At Mohenjodaro largest bricks are $20\frac{1}{2}''\times 10\frac{1}{2}''\times 3\frac{1}{2}''$.

The second noticeable feature is regarding the proportions prescribed. According to the first work, length is the same as breadth and the height is $\frac{1}{3}$ of it. This may be tabulated thus :—

(1) Breadth = length
Height = $\frac{1}{3}$ Breadth
(2 & 5) Breadth = $\frac{1}{2}$ length
Height = $\frac{1}{2}$ Breadth (i.e. $\frac{1}{4}$ of length)
(3) Breadth = $\frac{1}{2}$ length
Height = $\frac{1}{3}$ breadth (as no. 1 above)
(4) Breadth = $\frac{1}{2}$ length
Height = $\frac{2}{3}$ breadth (i.e. $\frac{1}{3}$ of length) (in the first text)
or
Breadth = $\frac{1}{2}$ length
Height = $\frac{1}{2}$ Breadth (as no. 2 above).

Almost all the texts agree in allowing the breadth = $\frac{1}{2}$ the length. Regarding the height we find two proportions generally i.e. height = $\frac{1}{2}$ the breadth in some texts.

or height = $\frac{1}{3}$ breadth in some other.

The most curious thing to be noted is that the sizes and proportions fixed in the Viṣṇudharmmottaram and the Atri Samhitā exactly tally with those of the bricks that have been discovered at Harappa. This size and proportion i.e. length 18″ and breadth = $\frac{1}{2}$ length, and height = $\frac{1}{2}$ breadth may therefore be considered to be the oldest custom followed in brick-making. It is also noteworthy that the Ī-Ś-G-P. while retaining the size of North India does not follow the proportion (first rule) and while following the proportions reduces the size (in the second rule). We may therefore take the first rule to be the earlier South Indian one, differing from that of the North only in porportion. The later texts in the same work refer to later stages, when the proportion was same as in the early times of North India but the size was of North Indian bricks of a later period. This will be

clear from the size and proportions laid down in the next group of works. Thus the proportion of the size of bricks in a very early period, it may be concluded, was height $= \frac{1}{2}$ or $\frac{1}{3}$ the breadth and breadth $= \frac{1}{2}$ length This is supported by the size of bricks found in various ruins E. G. Harappa brick $= 11'' \times 5\frac{1}{2}'' \times 2\frac{1}{2}''$ or $3''$ (Arch. S. R., 1920-21, p. 17); Maurya bricks of Sarnath $18''$ (or $19''$) $\times 9''$ or $10'' \times 3\frac{1}{2}''$ or $4''$, $17\frac{1}{2}'' \times 11'' \times 3''$. This size and proportion it may be said was followed from the time of the Harappa civilisation to the Maurya period, but continued upto the 10th century, as will be evident from bricks noted below.

Ter and Cezarla bricks $= 17'' \times 9'' \times 3''$ (5th cent. A.D)

Bhitargaon Temple bricks—$17\frac{1}{2}'' \times 10\frac{1}{2}'' \times 3''$ (5th cent)

Sirpur Lakshmana Temple bricks $= 17'' \times 9'' \times 3''$ (10th century).

GROUP II

In the second group I place the following works and respective sizes and proportions therein.—

(6) Agni Purāṇa—$9'' \times 9'' \times 3''$ (or $18'' \times 9'' \times 3''$ as no 3 above).

(7) Hayaśīrṣa Pañcharātram (as quoted in Haribhakti-vilāsa)— $9'' \times 9'' \times$ (not clear) (may be same as no 3 above).

(8) Śilparatnam—$9'' \times 4\frac{1}{2}'' \times 2\frac{1}{4}''$.

Here we notice that the size has been reduced and the proportion in the Northern texts is: Breadth = Length and Height $= \frac{1}{3}$ Breadth, and in the Southern text the oldest proportion (i e Breadth $= \frac{1}{2}$ Length and Height $= \frac{1}{2}$ breadth) is followed and the size and proportion may be compared with the second text of the I-Ś-G-Paddhati mentiond in group (1). The size and proportion mentioned in no. 5 and 7 have been observed in the bricks discovered in the excavations at Nagari E. G. $8'' \times 7\frac{1}{2}'' \times 2\frac{1}{2}''$ and $7\frac{3}{4}'' \times 7\frac{3}{4}'' \times 2\frac{1}{2}''$ (the date of the remains being perhaps of the Suṅga period). This proportion I think was further changed in later periods both in North and South India, as may be discerned by examination of the bricks of the later periods. We give below some idea of it from actual finds:—

Sarnath bricks of Kushan period—(Cat. Sarnath Museum)
$16\frac{1}{2}'' \times 11'' \times 2\frac{1}{4}''$
$12 \times 9\frac{1}{2}'' \times$ (unknown)
Same of Gupta period—$15'' \times 9'' \times$ (unknown)
Bricks found at Nagari—$14\frac{1}{2}'' \times 9'' \times 2\frac{1}{2}''$ (A.S.R., 1920-21)
$12\frac{1}{2}'' \times 8\frac{3}{4}'' \times 2\frac{1}{8}''$
Tiles at Besnagar— $14\frac{1}{2}'' \times 8\frac{1}{4}'' \times$ (unknown)

The proportions found here may be tabulated approximately.

Breadth $= \frac{3}{4}$ Length and height $= \frac{1}{4}$ Breadth (or $\frac{1}{5}$).

This matter deserves further elucidation. But if we assume that in the Kushan period breadth became $\frac{3}{4}$ leghth, (see Mānasāra) in that case it may be said that most of the texts mention above may be said to be referring to the pre-Kushan periods. This may further support the theory enunciated before that these texts undoubtedly prove the existence of Vāstuvidyā in the pre-Kushan period on which these texts were based. (Also see 'texts on bricks' below, last paragraph). The sizes and proportion laid down in no 7 above, if compared with those in no. 4 will indicate that the earliest rules of South India, are to be found in the religious works. It will also show that the Śilparatnam though a later work, contains better and earlier texts than those found in the Mayamatam and the Mānasāra, not only in matters of bricks but also in other respects, as has been discussed already.

Group III

In it I include the Mayamatam and the Mānasāra The Mayamatam lays down four kinds of sizes and proportions,
Viz—(1) Angulas $8 \times 4 \times 2$ (3) $12 \times 6 \times 2$
or (2) $10 \times 5 \times 2\frac{1}{2}$ (4) $16 \times 8 \times 2$

The first and the second prescriptions may be compared with the third and the fourth rules in the I-Ś-G- Paddhati. The proportion in these two rules is Breadth $= \frac{1}{2}$ length and height $= \frac{1}{2}$ breadth as in the I-Ś-G. But the Mayamatam also includes later developments, in rule 3 i.e. height $= \frac{1}{8}$ Breadth, as in the works of Group I and II. This shows that

the Mayamatam contains also early traditions. But the very fact that it gives so many alternatives indicates that a developed form of architecture has been discussed in the work. This is also apparent from comparing it with the Mānasāra.

The meaning of the verses in the Mānasāra referring to size of bricks has been misunderstood by Dr. Acharya not for his own fault but because of the text itself. The meaning of the verses, if the text be taken as a correct one, is what Dr. Acharya thinks (Ind. Arch, p. 43) But it will come to this.—

Width = 7 to 30 Aṅgulas.

Length = ¼, ½ or ¾ more than breadth or twice breadth.

Height = ½ width.

Now if this is the rule in the Mānasāra it will mean that the maximum size of bricks according to the Mānasāra will be approximately 39½″ × 22½″ × 11¼″ and the minimum 11½″ × 6½″ × 1⅛″.

We have not, as far as I know, got bricks of 40″ in actual specimens nor can so many sizes according to this text be possible in actual practice of brick-making. The text is undoubtedly corrupt in the book. The sizes mentioned as of the width must be those of the length and the second verse refers to diminishing of the width by ¼, ½ or ¾ of the length as is evident from the word 'una' mentioned in it and the I. J. text given in critical notes (Mānasāra Text, p. 81). In that case the maximum size will be 22½″ × 17″ × 8½″ and the minimum will be 6″ × 1½″ × ⅝″ and that will also give the proportion of the length, breadth and height, at least in some cases as following:—

Breadth = ½ length (as in all other texts) or ¾ length or ¼ length—which are not found in other texts but found in specimens of brick (See above). The maximum size mentioned here should be compared with that of the pre-historic bricks mentioned above. Such big bricks are mentioned only in the Mānasâra. Does it show that the Indus Valley civilisation was a Dravidian one?

Height = ½ breadth, as found in many other texts,

certainly very old ones (See Group I). But the minimum size laid down is absurd in practice. Thus the Mānasāra rules regarding bricks are based on very early traditions, but at the same time are confused to a very high degree, even if the text be corrected. This also proves that the Mānasāra text is later than that in the Mayamatam, and is a very confused compilation of a very late period. The absurd dimensions here are mere theoretical, as the names of the temples ending with the suffix "Kānta" also indicate.

I must say here that some North Indian texts are also currupt but may be corrected easily. This discussion may throw further light on the dates of the extant works on Vāstu and may also help scholars in determining the age of the remains discovered, from consideration of bricks

TEXTS REGARDING SIZE OF BRICKS

(1) Viśvakarma Prakāśa, Ch. 66, p. 55 (Venkateswar Edition) —

"Caturasrāh Samāh Kṛtvā Samantāddhasta-sammitāḥ
Vistārasya Tribhāgéna Vāhulyéna Susammitāh".

The verse is quite clear and 'Bāhulya' here cannot but mean 'depth or height' (See discussion, Chap XIX, Appendix).

(2) Viṣṇudharmmottaram (Part III, Ch. 91).

"Hastadīrghéna yantréna tadardha vistriténa ca
Tadardhocchritenātha kartavyā veṣṭakā matāh".

Here for 'Bāhulya' is used "Ucchrita"=height.

(3) Hayaśīrṣa Pañcharātram (Paṭala 8-V. R.S. Ms.)

"Hastamātrāśilā grāhyāś-caturasrā susammitāh
Ardhahasté grāhyā vāhulyā caturaṅgulāḥ".

The text may be compared with no. 1 above. In place of "⅓ of the breadth", here we find "4 Angulas"=⅓ breadth. The text also requires a bit correction, the word for 'Vāhulya' is here mentioned as 'Vāhanya' which, I think must be 'Vāhulya'. Here 'Caturasra' may refer to the fact that length and breadth may be equal, as we see in text no. 1 above. In that case the second line here may be indicating an alternative. This is also apparent in text no. 2 where

also we find 'Vā' before 'Iṣṭakā'. Both the texts no. 2 and 3, therefore, might have dropped some lines or words. But there is no difficulty in understanding the size even from the texts as they are.

(4) Iśāna-Ś-G-Paddhati (Part III, Paṭala 27).

(a) "Karāyatastadardham ca Vistṛtāṣṭāṅgulocchritaḥ"

(b to d) Angulaih Saṁkhayā dīrghaḥ Jagatipaṁtyanu-
stuvām
Kramāt Tadardhavistārā Vistārārdha Samuc-
chrayāh

[Jagati = 12 Angulas = 9″
Pamti = 10 Angulas
Anustuv = 8 Angulas]

(5) Atri Samhitā refers to two alternatives, of which first one refers to Caturasra (square bricks) and a second one similar to those in no 2 -

Tālonnatā Hastamātra Chaturasrā Śilāh Śubhā
Hastāyāmārdha-vistārā Bhāgotsedhāśca Śobhanāh

(6) Agni Purāṇa, Ch 41 (related by Bhagawān Hayagrīva)
Istakāśca śupakkāh syurdvādaśāngulasammatāh
Svavistāra-tribhāgena vaipulyena samanvitāh
Karapramāna śresthā syācchilāpyatha śilāmayé".

The text is confused here In the first line it is not clear whether length or breadth will be 12 Angulas. It may refer to both The proportion of the depth (Vaipulya) is ⅓ the breadth The last verse says that the best dimension is "one cubit" This may also refer to both the length and breadth In that case, the dimension given in Agni Purāṇa will be.

18″ × 18″ × 6″ (the best size)
or
9″ × 9″ × 3″

These alternative dimensions may be assumed to have been prescribed in this text too, as is discussed in no 3 above. But as the Agni Purāṇa was based on the Hayaśīrṣa Pañcharātram, I have placed this text in Group II along with the text below from the Hayaśīrṣa Pañcharātram quoted in the Haribhaktivilāsa

(7) Hayaśīrṣa Pañcharātram in Haribhaktivilāsa (Vilāsa XX)

"Sutala lakṣanopéta dvādaśāṅgula sammitāḥ
.Suvistāravibhāgena naipuṇyena ca sammitāḥ".

The text is undoubtedly corrupt here. As it is it means: The bricks "should be of even surface, of good qualities and 12 Aṅgulas in size. They also should have good breadth and proportion (?) or divisions and shall indicate skill". The meaning is quite vague and moreover if we compare it with the text (1) above, the real reading becomes apparent. Like the Agni Purāṇa text (6 above), the 12 Aṅgulas may here refer to the length and the breadth as well and the second verse may easily be read as :—

"Svavistāradvi (or tri) bhāgéna vaipulyenaca sammitāḥ". If we read here 'dvi' for 'tri', it shows that the Hayaśīrṣa prescribes here the height to be ½ the width as in text (2). But if compared with the text 6 above, we may also read it as 'tri'. In that case we find here an indication of the Hayaśīrṣa P. being an earlier work than the Agni Purāna as discussed before. But comparing the two Hayaśīrṣa Pañcharātra (Saura and Viṣṇu Kāṇḍa) texts with the Agni Purāna, we may say that this text also prescribes '4 Angulas' or ⅓ the width as the two other texts do. So the size may be

18″×18″×9″ or 18″×18″×6″ (as in text 1)
or more preferably 9″×9″×3″ as in the Agni Purāṇa. (12 Aṅgulas in text)

These confusions also must have been due to the attempt to reconcile old texts and tradition with the actual custom of brick-making prevailing at the time of the compilation of these texts. The oldest dimension of bricks was, as I have already said, 18″ in length, 9″ in breadth and 4½″ in height, as in the Viṣṇudharmmottara text, proportion being ½ length=breadth and ½ breadth=height. The later texts tried a reconciliation, reduced the size and changed the proportion of height into ⅓ the breadth. This attempt further may suggest that as the oldest proportions laid in these texts may be verified in specimens from Harappa, the Vāstu-works kept alive the traditions from the time of the

Harappa civilisation down to the sixth century A.D. This also further suggests that burnt bricks continued to exist in India from 2500 B.C. to the historic period. There was no gap between the two civilisations. The contention of scholars that burnt bricks did not exist in India before the Maurya period cannot thus be accepted. (See also discussions in Chapters IV, VIII and IX).

(8) Śilparatnam, Ch. 14. 89-90. "Bricks should be constructed having length of 12 Aṅgulas (9"), breadth half of that (i.e. $4\frac{1}{2}$") and height being half of width i.e. $2\frac{1}{4}$" or it may be less by $\frac{3}{4}$ (another alternative).

(9) Mayamatam, Ch. XV. 118-19—The bricks should be of 4, 5, 6 or 8 Mātrāngulas (i.e. in breadth). The length (Āyatā) will be double of that. (The word 'Āyatā' here must be length, not breadth). They will be in height (Tībra) $\frac{1}{2}$, $\frac{1}{3}$ and $\frac{1}{4}$ respectively of the width.

(10) Mānasāra, Ch. 12. 95-97. It has been discussed above.

APPENDIX E

ĀBHĀSA IN VĀSTUŚĀSTRA

ĀBHĀSA, according to Dr. P. K. Acharya, is a kind of material, a transparent substance, perhaps a sort of transparent marble, of which idols are made. ('Indian Architecture', Ch. LI, pp. 70-71 and 'Dictionary of Hindu Architecture', pp. 63-67). The word occurs in many verses in the works on Śilpaśāstra, of which verses 1 to 12 in Chapter 51 of the Mānasāra led Acharya to arrive at this meaning.

As Ābhāsa is included among the 9 materials of which idols are made, Dr. Acharya takes Ābhāsa to be one of the materials. The last four lines of the above verses have been taken by Dr. Acharya to contain the sub-divisions of Ābhāsa into Chitra, Ardhachitra and Ābhāsa and the meanings of these three words.

Now, Dr. Acharya interprets the words Sarvāṅga-dṛśyamāna as 'which can be completely seen through'. Ardhāṅga-drśyamāna' as 'only half transparent' and 'Ardhārdha-dṛiśyamānam as partially (lit. one fourth) transparent But in fact, these words should be translated respectively as 'one whose all parts are shown', one 'the half of which is shown' and 'one whose one-fourth is shown'. If we accept these meanings of these words, the last four lines cannot be taken as containing the subdivision of Ābhāsa; but, the author here gives the meaning of Ābhāsa which could not be clear on account of its being classed with the materials. If we accept the above meaning of the words, Chitra will mean a sculpture in the round or a complete structural building as the case may be, 'ardhachitra' will mean an 'alto-relief' or a representation of a structure in high relief or bas-relief and Ābhāsa will refer to a very low relief being a representation of a structure ("Paṭé bhittau ca yo ālékhyam") or a painting proper. The passages quoted by Dr. Acharya from Bhaviṣyapurāṇa and Suprabhedāgama (Dictionary, pp. 64-65) also clearly show that

Ābhāsa and Ālekhya are synonymous. The verses from Śilparatna (46. 2-5) clearly shows that Ābhāsa is a kind of Chitra (also known as Chitrābhāsa). The four verses of Mānasāra so long discussed, therefore, clearly contain the definition of Ābhāsa (in a crude way no doubt and vaguely, as the Mānasāra always does) and not the subdivisions of Ābhāsa. Therefore the word 'Ābhāsa' cannot denote a transparent material. In the Mānasāra verses, therefore, though Ābhāsa is included in the other materials of idol construction, it will mean that 'an idol may be made of materials with which a painting is made' (i.e. colour, paṭa etc) or 'may be made in the form of an Ābhāsa'. In similar verses as in the Īśānaśivaguru P (Patala 91) we find the word 'Ābhāsa' replaced by "Dhātu Varṇādyamālekhyam" It is because the word does not refer to a material proper that the author of the Mānasāra took care to explain in the last verses what he meant by Ābhāsa The Śilparatna passage and Suprabhedāgama passage quoted in the Dictionary by Dr Acharya clearly show that Ābhāsa and Chitrābhāsa are synonymous This is clear from the last verses of the Mānasāra which says "Ābhāsa should be made with five colours on Bhitti or Paṭa."

Colours in making an 'Ābhāsa' therefore are materials and hence Ābhāsa also has been taken by the Mānasāra as a material. The Samarāngana (Ch. 76) also refers to Lekhya and Chitra as two materials for images (But See Ch. XXX). The word Ābhāsa literally does not mean simply splendour, light, transparency, the meanings which Dr Acharya took in his book on Indian architecture (p. 71) but also means "semblance, looking like, having the appearance of a thing" (M. Williams, Apte's 'Dictionary') In Śilpaśāstra therefore the literal meaning of Chitrābhāsa will be "having the semblance or appearance of a Chitra", a kind of Chitra in its wider sense, a mere representation of a temple, building, idol and the like, either in sculpture in the form of a low relief on a bhitti etc. or a painting on paṭa.

This is further proved by the Śilparatnam chapter on materials for making images (Part II, Ch. 1, Verse 21 and 48-52) in which 'Mṛinmaya', and 'Lekhya' are mentioned as two kinds of images. The matter is elaborated later on where 'Mṛiṇmaya' image is further divided into 'Āmam mārttikam' i.e. of unburnt clay, and 'Pakkaliṅgam' i.e. images of burnt clay. After that it is said "That is called 'Lekhya Vimba' which is depicted on walls etc. with colours." This is what the Mānasāra also means by 'Ābhāsa' and so explains the words more clearly in verse 6 (Ch. 51). Ābhāsa is not a material but refers to images depicted in painting with colours of five kinds.

The Śilparatna also describes this 'images in painting' in the subsection ('Atha Mṛidaḥ') dealing with images made of clay. That the Mānasāra lines appear to be corrupt is also evident from the corrections made by Dr. Acharya himself. This is a further illustration of confusions made by the compiler of the Mānasāra who copied without understanding many things. Dr. Acharya himself says that 'Ābhāsa' and 'Ālekhya' mean the same thing (Dictionary, p. 65), but still he thinks that both indicate some 'material'.

The other meaning given to this word by Acharya viz. "a class of building" is also not true to the point. The meaning of the word is referred to in connection with the verse:—

"Jāticchandam Vikalpam to Ābhāsam tu Caturvidham" (Mānasāra, Ch. 19. 1) and another verse in the Kāmikāgama (L. 13).

In both these places the words 'Jāti', 'Chanda', 'Vikalpa' and 'Ābhāsa' originally meant a classification of buildings based on four different methods of depicting the figure of a temple or building, though in many such works, structures of these classes are really mentioned and described. 'Jāti' is a real structure in the round or main-temple. 'Chanda' is not a real structure but 'something like a structure', such as the representation of temples on the temple-Śikhara itself (as found on many temples); 'Vikalpa' is perhaps the figure of a structure made in sculpture in high or low relief, as

found on pedestals of temples, over images and such others, and 'Ābhāsa' here also means the figure of a structure painted with colours on walls and paṭas. Though the meaning of 'Chanda' and 'Vikalpa' here cannot be definitely ascertained, there is no doubt that 'Ābhāsa' here too, as in cases before mentioned, refers to the painting of a temple and not a class of buildings. The Vaikhānasāgama dealing with Prākāra (Patala VII) refers to Ābhāsa and Vikalpa of the Dvāraśobhā etc. and in place of Chanda and Jāti uses the words 'Madhyama' and 'Uttama' respectively. This shows cearly that in case of temples too, we may take the words Jāti, Chanda and Vikalpa to refer to the best, middling and a still lower type of temples respectively i.e. the main temple, the smaller ones in the compound, the representations etc.

Thus 'Ābhāsa' in both the cases means 'having the semblance of' and neither a material nor a class of structure.

In the Oriental Conference at Patna 1930, Dr. Acharya further tried to support his theory even after Dr. Coomaraswamy had come to the same conclusion as has been discussed here (J. A. O. Society, 1928 and 1932). Dr. Acharya's arguments were based on the reference to a 'snowy sand' mentioned in It-sing's account as a material for image-making and on the assumption that the Sūprabhedāgama or the Śilparatnam were really mistaken in explaining the word as 'Ālekhya' and that Śilparatnam was a mere summary of the Mānasāra whereas the Mānasāra being the standard work could not have misrepresented things. But It-sing's 'snowy sand' must be identified with 'Śarkarā' of the texts. I have already shown above that it was the Mānasāra which, in this chapter, as in many other places, gives a confused account and text, and not the Śilparatnam or the Sūprabhedāgama. Moreover, these two works, I have already shown, have not taken anything from the Mānasāra but from other works. Regarding the proposed identification of Ābhāsa with something like glass, it may be said that the Mānasāra being a book of not earlier than the 11th century could have easily referred to the word "Kāchamaṇi", if anything like glass was used in image making at the time

when it was composed. If Ābhāsa refers to a material what will be the meaning of Chitra, Chitrārdha and Chitrābhāśa? The meaning also will not suit the classification of temples and other structures into Jāti, Chanda, Vikalpa and Ābhāsa. Dr. Coomaraswamy takes rightly this word to mean 'painting'—but it perhaps also refers to the very low reliefs.

CHAPTER XXVI

ORIGIN OF TEMPLES

WE have already discussed the various forms of Indian temples and Indian conception of these religious structures. What information may be gathered regarding the origin of temples from the study of the architectural treatises may now be considered.

Temples in some form must have originated as soon as image worship came into vogue in India If image worship in some form had existed among the non-Aryans, existence of temples must also be regarded as a pre-Vedic fact. We are not concerned here so much with the pre-historic period, as with the Hindu temples, incidentally, however, referring to that early period

Long before the Matsya Purāna, the Viśvakarma Prakāśa and the Bṛihat Saṃhitā, Indian temples had not only originated, but assumed various forms. Temples existed before the Gupta period. In and after the Gupta period, remains of temples testify to the developed form of the Hindu temples. But what was the origin of the Northern style and the Southern one of the Hindu temples is a vexing question Various opinions have been expressed regarding this matter. (E. G. See R. Chanda: Rupam 1924, Coomaraswamy: Hist of I I. Art; Dr. Ramannaya: Origin of South Indian Temples, Saraswati—J.I.S.O.A., 1940, and Indian Culture, Vol VIII, p. 189, S Kramrisch JISOA etc. Longhurst—A. S. R.—S circle 1916 etc) But none of the solutions appear to be sufficient to explain the origin completely.

First let us consider the terms used to signify a temple. In all ancient literature (The Epics, the Sūtras, the Arthaśāstra etc.) temples are referred to as "Devālaya', 'Devāyatana', 'Devakula' 'Devagriha' etc. These terms indicate that the ancient temple was a 'house' of the Gods. No especial word has yet been created to signify a peculiar structure in which the Indians placed the images of their Gods.

The earliest temples, therefore, were designed after the models of the residential houses—there was no difference between a 'Gṛiha' and a 'Mandira' (temple). In Crete, too, temples were known as "houses of the deity".

When we come to the Vāstuśāstras we find that 'Prāsāda' is the most general word used to indicate a temple. This is true especially of the North Indian Vāstu texts and the Gupta Inscriptions. The South Indian texts, refer to temples mostly as the Vimāna and the Harmya, and occasionally as Prāsāda. Later on in the Śilpaśāstras all these terms were used synonymously. One thing to notice is that the word 'Mandira' which is the most commonly used word nowadays is altogether absent in the earliest known inscriptions and literature, though in later Southern Vāstu texts it has been taken as a synonym for 'Prāsāda' or 'Harmya' (Mayamatam, XIX. 10-12; Mānasāra, III etc.). The Northern texts, however, indicate that the term 'Mandira' has a technical meaning. The Viśvakarma Prakāśa (IV. 13) defines the Mandira thus· "A house made of stone is a Mandira". We have traced the word 'Mandira' in the Kādambarī (7th century A.D.) and in a quotation from Hiraṇyagarbha in Bhaṭṭotpala's commentary. In all other early texts, literary or epigraphic, the most commonly used word to indicate a temple is 'Prāsāda'.

The other words which were later on taken as synonyms of a temple (Prāsāda) have of course been found in very early literature. But it is doubtful if in those early texts, those words have been used to signify a temple. Thus, the Vedas contain the word 'Harmya', but it perhaps refers to a strong house (or a kind of building used for residential or fortification purpose—Vide Chap. II). The Śāṅkhāyana Śrauta Sūtra (16. 18. 13-17) refers to a Prāsada with walls around the roof and with windows The priest was to get upon the Prāsāda and offer grains etc. to fire from there. This shows that it was not the house of a god or temple, but represented a palace, though used for religious purpose. The Epics contain the words Prāsāda, Harmya, Vimāna in many verses, but whether they refer to abodes of Gods

or merely big palaces cannot be made out from the contexts. On the other hand it has been already pointed out that the epics make a distinction between these various terms —Prāsāda, Harmya, Vimāna, Saudha etc. (Chap. V and VI) They at the same time refer to temples as merely 'houses of God' (Devāyatana etc).

These discussions therefore indicate that all these words which were later on taken as referring to temples were not originally signifying the same thing. Even the word 'Mandira' later on meant a 'house' and used as such in later literature. But in ancient times each of these words indicated a different sort of structure. Each had a different shape and form, which later on was forgotten by the laymen and even the writers on Vāstuvidyā and the lexicographers. Some of the characteristics were, however, known to some lexicographers (See Appendix F).

The commentator Buddhaghosha makes a distinction between the 'Prāsāda' and the 'Harmmya'. The Vinaya Pitaka knows this distinction (See Ch. VIII). Even later Śilpa texts were not altogether ignorant of the distinction. In describing the gateways, the Mayamatam (Ch. XXIV. 82) (and some other South Indian Vāstu texts also) says that "Dvāraprāsāda is one which has a similarity in form to that of the Prāsāda, and Dvāraharmmya has the shape of a Mālikā and so on". They, therefore, clearly distinguish a Prāsāda from a Harmya, Sālā, Śabhā and a Gopuram. The Samarāngana Sūtradhāra (Ch. XIII. 10) also defines a Harmya as "the upper storey of a house", which is of course not clear at all.

The distinctive characteristics of these various structures (The Prāsāda, Harmya, Vimāna) may give us a clue to the origin of the Indian temples. First let us discuss the characteristics of a Prāsāda. A Prāsāda is always described as a many-storeyed (seven-storeyed, generally) structure in the Jataka stories, the Ramayana, the Mahabharata and the lexicons. In the Epics and the Jatakas, a Śikhara or 'Śriṅga' is also almost always associated with a Prāsāda. The Gupta inscriptions (even of Kumārgupta's time) also in many

passages refer to the Śikhara of the Prāsādas. In the Mahābhāshya of Patanjali (I. 1. 9) there is a reference to the 'Prāsāda' in the sense of a temple and the 'Bhūmi' (the storey or upper part of the Prāsāda). Thus we find that even before the second century B.C. Prāsāda was a structure with a Śikhara and having many storeys on the top (i.e. in the Śikhara). But even in this period it meant both a residential as well as a religious structure. In the Ramayana, the 'Chaitya Prāsāda' might refer to a religious structure. In the Vāstuśāstras of the earliest period (the quotations in Bhaṭṭotpala's commentary, the Viśvakarma Prakāśa and the Matsya Purāṇa) 'Prāsāda' came definitely to mean a 'temple' having a Śikhara of many 'bhūmi's (or storeys). The North Indian temples (Prāsādas) with a towered Śikhara containing many 'bhūmis' must therefore have originated before the 2nd century B.C. (Probable date of Garga). Before the Matsya Purāṇa, there arose at least 20 kinds of Prāsādas in India. (cf. 'Rājaprāsada chaitya' of Bodhgaya Rail inscription).

Another characteristic feature of the North Indian temple (Prāsāda) was the Āmalaka (or, the Āmalasāra, Āmalāsthi, Āmalakasāra etc.) the well-known crowning piece under the Kalasa. The antiquity of the Āmalaka has also been proved by the discovery of Āmalaka capitals at Besnagar [A. S. R., 1913-14, p. 189 ff., pl. LIV(a)] of the second century B.C., and on the pillars in the Amarāvati sculptures and the Mathura sculptures (vide 'Mathura Antiquities' by V. A. Smith, pl. LVII). Coomaraswamy (J. A. O. S. 1928, p. 282) refers to the occurrence of the word 'Āmalaka' in the Cullavagga in connection with the legs of a chair.

From all these discussions we conclude that—

(1) The Prāsāda was a many-storeyed building.

(2) It was differentiated from all other types of structures in ancient literature.

(3) It existed at the time of the Buddha and even perhaps before him (Cullavagga).

(4) The storeys and Śikharas of Prāsādas are known to very early literature.

(5) The Āmalaka was also a very favourite decorative motif with early Indians.

(6) Prāsādas were sometimes constructed over a Chaitya (Aryan or non-Aryan).

(7) It is invariably the term applied to indicate a temple in all North Indian Vāstu texts.

The word in earliest times perhaps meant a 'palace', a palatial building of many storeys and other peculiar forms. It was in a later period, perhaps Second Century B.C., that temples also were built after the model of this type of buildings and hence it is that the word is used in the Śilpaśāstras to invariably mean a temple, whereas in early literature a temple is not mentioned either as a Prāsāda or Harmya or Vimāna or Mandira, but simply as a 'house of the Gods' (See also below).

Like the Prāsāda, the Harmya was another class of ostentatious structure. Its shape was different from that of the Prāsāda The Cullavagga refers to it. The Arthaśāstra refers to the Kumarī's temple being in shape 'Muṇḍa Harmya'. Buddhaghosha explains Harmya as a building with a Kuta on the top (Ch. VIII). The Mayamatam (Chap. XXVI, 100) defines the word as "a Śālā with a Śikhara having the shape of a Munda". From these references we may come to two conclusions.

(1) That the Harmmya building with which South Indian Śilpa texts identify the Vimāna, was a structure like the South Indian temples on which we find a muṇda (Head) i.e. the Śikhara and also the 'kuṭas' i.e. the chapels on the cornices all around the Śikhara.

(2) The Harmmya might also be the flat-roofed buildings with a small chamber on the roof, as the word 'Muṇḍa' may also mean 'mundita' (shaven) i.e. without any Śikhara (tower) In this sense it might be similar to the Gupta temples But the Gupta inscriptions invariably calls a temple by the name of a 'Prāsāda'.

The most commonly used word for the temple in the South Indian Vāstu texts (especially the later ones) is 'Vimāna'. Dr. V. Ramannaya has referred to the existence of Vimāna

class of buildings in ancient India from innumerable references to it in early literature. But those references do not give us any clear idea about the form of the Vimāna buildings. We also, in fact, cannot even learn from them definitely if Vimānas were temples or residential buildings. The later lexicographers and South Indian Vāstu works take 'Vimāna' to mean a temple[1]. The commentator of the Ramayana (Vide Chap. on Ramayana) says that Vimāna was a chariot and a house of seven storeys. From this we may conclude that Vimānas might have been seven-storeyed buildings having the shape of a chariot. From the Ramayana again we learn that the Vimānas were placed on the top of Prāsādas, as the expression 'Prāsādāgra Vimāneṣu' indicates. In that case, the Vimānas with which the South Indian temples are always identified, might have been the buildings similar in form to the South Indian temples and built in imitation of chariots. This may partially support the view of Dr. Ramannaya about the origin of South Indian temples. But the origin of North Indian temple-Śikharas from chariots, as held by scholars like Havell, Coomaraswamy etc., cannot be supported for the following reasons —

(1) In ancient India, chariots as well as houses were made of wood and bamboo. The curved bamboo, which is supposed to have given shape to the curvilinear Śikhara, might have been used in the construction of both houses and chariots. We therefore cannot say if houses (Vimānas) were made in imitation of the chariots (Vimāna) or chariots made after the house models. Men perhaps first built houses and then chariots.

(2) If both the northern Śikharas and the Southern temples (with storeyed upper part) were made after the model of a chariot, it is not clear how the Śikharas of North Indian temples differed totally from those of the South. It is, therefore, more likely that Northern chariots were made in imitation of North Indian houses, and Southern chariots

[1] In the chapter on 'Śālās', the Mayamatam defines 'Vimāna' as "a Śālā with a 'Śira' is a Vimāna". The use of the word 'Śālā' here is also significant; for 'Śālā' was also a special kind of structure, not any building.

were made after the model of South Indian houses, and not that houses were made after chariot models.

(3) In ancient literature houses have been compared to chariots (See Ch. on Mahabharata). In such passages the houses were called sometimes Prāsādas and sometimes Vimānas The North Indian Vāstu texts refer to a class of temple called 'Vimānacchanda' or 'Vimāna'—indicating that some temples might have the shape of a chariot, and not all. In actual specimens too we have got temples similar to chariots, as the Sun temple at Konarka (Orissa), or the Mamallapuram Rathas.

(4) In fact, the word 'Vimāna' according to the earliest known lexicographer Amara meant only a 'Chariot' and not the Vimāna type of buildings (though the Ramayana and Mahabharata references show that Vimāna therein referred to buildings of a particular type).

(5) The earliest South Indian texts call temples by the term 'Prāsāda' and not Vimāna, as the later texts do. The earliest temples of South India, therefore, could not have been built after chariot models, though the later 'Dravidian' temples might have been so modelled.

(6) The word 'Ratha' got a technical meaning with reference to the North Indian temples (projections of the walls), while in South India it meant a chariot, as in the case of the Mamallapuram Rathas.

The references to Vimānas in early literature, therefore, do not supply us with any definite information about the structure and shape of the buildings of that name, and we cannot even say if all Indian temples had their origin from chariots.

Later writers of Śilpaśāstras, however, confused the two meanings of Vimāna and have written that Prāsādas were built after the models of the chariots of the gods. The Samarāngana Sūtradhāra (Ch 49) describes the origin of temples in the following way—"In ancient times Brahmmā created five Vimānas (chariots) for the Gods, fit for travelling through the air; and Prāsādas having the same forms were built of stone, burnt bricks and wood, in order to

decorate the cities." This tradition must have originated in a late period due to the confusion in the two meanings of Vimāna on the one hand, and the meanings of the words Prāsāda and Vimāna on the other. No reliance can, therefore, be placed on these later writers on Vāstu who could not distinguish between a Prāsāda, Harmmya, Vimāna etc.

The origin of Hindu temples from the Buddhist stūpas and Chaityas has also been another suggestion of scholars. Dr. Ramannaya has very ably tried to prove that stūpas were not peculiarly Buddhist structures, that stūpas existed even before the birth of Buddhism and that the later development of the Buddhist stūpa into temple-like form was due to the influence of Hindu temples on them after the 4th or 5th century A.D. It may be added here that we may trace the existence of a kind of stūpa even in the Vedic period (See Chap. II). The Śatapatha Brāhmaṇa records the tradition of Aryan stūpas being built of four sides and Asura stūpas being round in shape. The Buddhists therefore generally followed the Asura round models. Dr. Ramannaya has traced the custom of erecting stūpas among the Billavas of South Canara (origin of S. I. Temples, p. 48). In fact, even in North India, sand stūpas are made at the time of Śrāddha ceremony at Gaya. The association of funeral customs with the stūpa is thus an universal practice with the Indians—Aryans or Non-Aryans. Dr. Dubreuil has attempted to identify the pre-historic Mennapuram cave and the Sudama cave with the Vedic graves. It may be added that the Son-bhandar cave at Rajgir also has some similarity in its inner part with a stūpa. There is nothing to show that the Rajgir cave was Buddhistic and not contemporary with the Jarāsandha-ka-Vaiṭhak which is also probably a pre-Mauryan structure.

Dr. Ramannaya has also tried to show that Chaityas were also pre-Buddhistic structures and hence early Hindu temples might naturally be similar to such Chaityas. The early literature shows that the word Chaitya had various meanings. It meant a fire-altar, a sacred tree and also a

structure. The 'Chaitya Prāsāda', mentioned in the Ramayana shows that a Prāsāda (temple) was often built on a Chaitya. Here Chaitya might mean a fire-altar or a sacred tree. It is quite likely that though scholars have taken the word 'citi' (from which Chaitya is derived) to mean a fire-altar, it may also mean a funeral pyre (Citā in Bengali). Even nowadays Maṭhas are erected in Bengal over the place where a man is burnt, and often a Śivaliṅgam is placed inside the Maṭha. The famous Rājabāri Maṭha, now destroyed by the Padmā river, was such a structure. It is quite likely that Chaitya trees were trees planted on the Chitās, in case no Maṭha could be erected over the place. This is also the custom in Bengal. The Chaitya Prāsāda was a Maṭha (temple) erected thereon. It is perhaps for this that in the Epics, cities are described as full of Chaityas. The account of Megasthenes that spoliation of sacred trees were punished with death may also be thus explained Of course, even besides these, tree worship might have existed among certain Indian tribes. The Mohenjodaro and Harappa seals (Marshall's Mohenjodaro, Chap V) also prove its existence in pre-historic India All these show that Chaityas were not peculiarly Buddhistic structures and that Buddhists had taken their models from the Aryan or non-Aryan structures called Chaityas. In fact Chaitya was a general term for temples, as some later lexicographers take it to be—constructed by non-Aryans in their tree worship (or as 'Chaitya' is explained by the commentator of the Ramayana as a house of the God of Rākshasas), by the Aryans around the fire-altar or the funeral place, and later on by the Buddhists (See Author's 'Cult of Brahmā', p 171).

That the Chaitya is also primarily associated with funeral customs is also apparent from the fact that the features of the Chaitya must have originated from the stūpas. If we cut the stūpa in the middle from top to bottom, or say, if we enter inside a stūpa, the inner side will look exactly like a Chaitya At the end will be an apsidal or round wall and above the head will be the vaulted roof. The Sudama cave, the Lomasa Rishi and Junnar caves point to this fact.

When the round stūpa (which was also pre-Buddhistic) became the favourite object of worship by the Buddhists, they wanted to place this object of worship inside a covered place, as the Hindus too did with their images, or the ashes of the dead (on the Citā). They took the model of their temples from the stūpa itself and put another stūpa inside. The rows of pillars inside a Chaitya represented the rails which existed around the stūpa, the sacred trees or Citās. Thus in construction of the Chaitya the Buddhists perhaps followed the old Indian models of a round stūpa. (For another plausible origin see next chapter).

Only a few Deccanese temples have been found similar to the Buddhist Chaityas. It is not advisable to conclude from only those few specimens that Hindu temples originated from the Buddhist Chaityas The earliest known Hindu temples (the Gupta temples) are flat-roofed The plan of most of the Hindu temples is square and not apsidal. The mouldings on temple-Śikharas are not similar to anything found on Buddhist Chaityas The descriptions of these mouldings in the Vāstuśāstras indicate that there was no similarity between them and those on the Chaityas.

On the other hand the Cullavagga indicates that Prāsādas which existed before the rise of Buddhism were also adopted by the Buddhists A sculpture at Bharhut contains an inscription showing that the figure therein is of a Prāsāda. (Fig. 43 in Coomaraswamy, H I. I Art). It was such Prāsādas which were the temples of the Hindus both in the earlier and later periods (when the Vāstu works were written). 'Vihāras' also were perhaps originally Hindu establishments (See Cullavagga and Chap. XXVIII). All these indicate that in the constructions of temples, it was the Buddhists who were indebted to the early Indians, and not that the Hindus were indebted to the Buddhists.

Besides the Prāsāda, there were several other kinds of temples in India. The Bharhut Gateway, Mathura sculptures and Amaravati sculptures contain representations of temples which were not at all similar to the Buddhist Chaityas. It is one of them which is called a Prāsāda. Of

the others some have got circular domes on them, some consist of square cells and oblong roofs. The points of differences of these structures from the Buddhist Chaitya are obvious (Coomaraswamy, figs. 41, 43, 45, 46, 142). The railings round these figures need not necessarily be Buddhist rails, but might have been taken from earlier models of rails round sacred trees (figures of which are also found at Bharhut and other sculptures). The origin of the horse-shoe arches has been traced by scholars to wooden structures and if that be the case, they also could not have been an invention of the Buddhists but must have been copied from houses of that period. The representation of such windows on temple Śikharas, therefore, need not be taken as pointing to the Buddhist origin of Hindu temples

The next thing to be discussed is the origin of the Śikharas of Northern temples Most of the scholars are of opinion that curvilinear Śikharas began to appear in the late Gupta period. That does not however, preclude the existence of some kinds of Śikhara in an earlier period The Bharhut sculptures of the second century B C , the Sanchi sculptures of about the same period, the Amaravati and Mathura sculptures of the 1st and 2nd century A.D. and the Bodh-Gaya plaque (?) of about the same time indicate the existence of round domes, oblong domes (Bharhut), curvilinear towers (as in Mathura sculptures) and square-edged pyramidical towers even before the Gupta period. The Kharavela inscription, as Dr Jayaswal points out, also refers to the existence of 'Śikharas' in the 2nd century B.C. or the 1st century B.C. Coomaraswamy has therefore, said that the Indian temple-Śikharas had their prototype in the early representation of towers found in sculptures of different places of India. The Vāstuśāstras also clearly indicate that long before the Matsya Purāṇa, North Indian temples had not only towers (Śikharas) on them but also these towers had assumed various forms. These Śikharas, therefore, had developed neither from Rathas (Chariots) or from the Buddhistic Chaityas. The curvilinear tower was undoubtedly a later development of early Indian towers.

Coomaraswamy further supports Fergusson's view and observes[1] that the "Nāgara shrine really represents a piling up of many superimposed storeys or roofs, much compressed. The key of this origin is the Āmalaka; proprely the crowning element of a tower, its appearance at the angles of successive course shows that each of these corresponds in nature to a roof. Thus the Nāgara and Drāviḍa towers both originate in the same way." This view appears to be partially correct from the study of the Vāstuvidyā. The northern Vāstu texts in describing the Prāsādas (temples) say that the Prāsādas might be many-storeyed. The southern texts also refer to Vimānas of various storeys. The temple Śikharas, both of the north and the south therefore really represented various storeys; in the north, they are compressed; in the south "the storeyed principle is never lost sight of". But so far the view of Coomaraswamy appears to be correct But the question arises why and how this difference between the Śikharas in the two schools arose. In the case of northern Śikharas, the key to the origin viz. the Āmalaka is found not only on the top but also in the angles. This is also supported by the Vāstuśāstras[2] of the northern school. But the Āmalaka is altogether absent in the Dravidian style. Thus it appears that even if we "take into account the primitives of the two types" (as Coomaraswamy asks us to do), we find that in both the towers the same storeyed principle is working but in two different ways. This difference may indicate that originally the norhern Śikharas also contained actual storeys, as the Drāvida ones But there is no proof of that state of affairs; nor of the fact that the Northern Śikharas were imitations of Southern Śikharas. The facts stated below will rather show that at one time, the Drāviḍa temples imitated the Northern ones. In northern texts the storey of the Śikhara is invariably called 'Bhūmi', the southern texts call it generally "Tala or Bhūmi". Though these two terms are identical, did they originally

[1] History of Indian and Indonesian Art, p. 83.

[2] Hayaśirṣa Pañcharātra (Ch. 13)—"Koneṣu bhumau bhumau catasro= malāsthikāh."

differ in meaning, the 'Bhūmi' referring to compressed storeys and 'Taḷa' to storeys proper? The square-edged Śikhara of the original Bodh Gaya temple (the Bodh Gaya plaque?) also indicates a stage when in Northern India the Śikharas were compressed storeys. Thus if actual storeys ever existed in North India, it must have been so in a very early period, when the 'Prāsāda' really had many storeys and were houses of the kings or the rich, as the word Prāsāda indicated even in later times It is quite likely that Prāsādas (as palaces) had seven storeys, it was only after they were used as temples that they gradually got at first 12 storeys and then still later, 16 or 17 storeys. It is apparent from the earliest descriptions of Prāsādas and the injunctions that residential houses could not have more than 7 storeys. Thus we may surmise that when the model of a king's house (Prāsāda) was adopted for making a temple, the North Indian people compressed the storeys, as there was no necessity of the storeys in a temple. The North Indian Śikhara and temples were therefore not based on the models of chariots, but on that of the Prāsāda type of buildings which were originally houses of the rich or the kings.

The curvilinear Sikhara with the Āmalaka on it, according to Stella Kramrisch (J I.S O A, XII., p. 188) "presupposes a central shaft which having traversed the entire body of the Prāsāda would emerge above it, support, and be rivetted in its crown, the Āmalaka" This type of Prāsāda, if it existed, must have been like the "one-pillared Prāsāda" mentioned in the Jātaka stories (See Chap. VII) This also supports the existence, in a very ancient period, of a type of house with a central post as has been concluded from the study of the Gṛhya Sūtras (See Chap I and IV) and explains the great importance attached by Indians to that central post and the central place of the building site (See Chap I and IV) Dr Kramrisch's contention that the term 'Prāsāda' was originally the name of a temple, and later on was applied to palaces, cannot be supported. In early literature, Prāsādas perhaps always meant a palace; and temples were designated simply as 'Deva Gṛha, Devāya-

tana etc." It was in a later period, therefore, that temples were constructed after the model of a palace (Prāsāda); in earlier times temples had various other forms (as found in Bharhut sculptures etc.).

The South Indian temples similarly were originally based on the residential houses of the Deccan (Vimāna type of buildings, which perhaps in earlier days did not mean a temple) and preserved the semblance of storeyed structures (the Vimānas), while in the North, the storeyes were made very compressed. That the South Indian temples were based on residential houses of the Deccan is further proved by what has been stated about the two kinds of temple classifications (of Prāsādas and of Vimānas) found in the South Indian Vāstu texts. (See Chap. XIII, pp. 147-19). This is further indicated by the fact that the Vimāna, according to the Mayamatam, was a Śālā (a residential type of building) with a 'Śira'. Moreover, while the classification of temples of North Indian differs so much from that of the Deccan, the classification of residential houses (Śālās) in almost all the Southern texts agree with that of the houses of Northern India (See Table 7). This happened, because in construction of residential houses, the old traditions (common to both North and South India) were preserved; but regarding temples, the Vāstuśāstras of the South had to adjust their accounts with the new style of temples that arose in the Deccan.

In the Samarāṅgaṇa Sūtradhāra (Chapter 45) it is related that the Vairāja chariot was meant for Brahmmā, Kailasa for Śiva, Pushpaka for Kuvera, Manika for Varuṇa and Trivishṭapa for Indra. The North Indian temples were also called by these names (Vide Ch XV) according to their being square, round, rectangular, oval and octagonal respectively. Thus even if we take the tradition as a late one, it however, connects the square (chariots and) temples with Brahmmā, round ones with Śiva, rectangular ones with Kuvera, oval ones with Varuṇa and octagonal ones with Indra. The Samarāṅgaṇa Sūtradhāra, however, does not explicitly connect the temples of each of these forms with

the above mentioned gods respectively. But in South Indian texts we find particular gods associated with particular kinds of temples (See Ch. XIV). This idea must have developed in a later period. The classification of temples in the Atri Samhitā, and the names of pillars in all the South Indian texts viz. Brahmakānta, Vishṇukānta, Īśakānta, Rudrakānta, Skandakānta, Indrakānta, Kuverakānta etc. also similarly associate the form of a structure with a particular god. Coomaraswamy writes "Nor can a clear distinction of Viṣṇu or Śiva temples made in the Mānasāra and followed by Havell and Diez, be recognised in medieval practice" (H. of India. Art, p 106). The conception, therefore, though not really found in practice, had undoubtedly developed in India. But there is no doubt that it was of a later origin and cannot therefore, be taken to explain the origin of the Indian temples of various shapes.

As towered temples have not been discovered in South India before the 6th century A D. many scholars have traced influence of Buddhist Chaityas on the origin of those temples The earliest known South Indian temples—the Chezarla (4th century) and Ter (about 450 A.D.) - really bear similarity with the Buddhist Chaityas. Dr Ramannaya has shown that the Mamallapuram Rathas also bear similarity with temples depicted in the Bharhut sculptures The towered temples depicted on Amaravati and Jaggayyapeta sculptures also go to support Ramannaya's contentions. But in explaining the similarity of Ter and Chezarla temples with Buddhist Chaityas, he has said that South Indian temples arose without being influenced by the Chaityas.

This he has done by reference to the earlier structures of South India—the dolmen temples, the hut shaped temples, the Sudalaimadan shrine and the Toda Boaths. He therefore concludes that "the hutshaped temple was superimposed upon the dolmen shaped and the result is the modern South Indian temple". He has further said that the "Dravidians learnt the art of constructing Vimānas from the Aryans who came to the South much earlier than the time of the Buddha ' and therefore there is no necessity of

thinking that the Dravidians borrowed the idea of Vimāna from the Buddhists. But then he has to show why the same art assumed two forms—one in the North and the other in South. He has to show that in the intermediate period i.e. between the age of coming of pre-Buddhistic Aryans to South India and the age of the existing Dravidian temples, there were, in South India, buildings constructed in the style of Bharhut or Bodh Gaya etc. which he has failed to do. He has therefore to take recourse to what he thinks to be the other styles of South Indian structures.

We shall have, therefore, to find out how much of truth exists in the contentions of Dr. Ramannaya. First, regarding his references to the South Indian village temples, it may be said that the system of erecting temples on the spot where a dead man is burned, as has been shown, is not peculiarly South Indian. In Bengal the custom of erecting 'maṭha' on the place where a man is burnt (generally if burnt in the compound of the house of the deceased or his own land) is still prevalent and temples of Śmaśāneśvara Śiva are found not only in South India, but also in the North.

Secondly, the Sacred Tree and Gods living under trees is also not a peculiarly South Indian custom.

Thirdly, the Toda Azarams and primitive temples, (as Longhurst also tries to prove) might have led to the plan and the Prākāras of the South Indian temples, but surely not their exterior and upper part. The hut shaped temples also are not peculiarly South Indian. They are found in North India as well. His contentions about cars having connection with funeral rites might be of South Indian origin, but their connection with gods is found also in North India. I have already discussed how far cars can explain the origin of Indian temples.

Regarding the Toda Boath, Dr. Ramannaya himself finds only very little difference between them and the North Indian temples. He therefore explains this matter by referring to imitation of this style by the North Indian people at the time when the Aryans first came to India. But it is not clear at all how this type of Śikhara gave birth

to the 'Vimāna' of the later South Indian temples Dr. Ramannaya (p. 68-71) has therefore, to admit here that the "Boa shrine superimposed on the dolmen temple" was further subjected to Buddhistic influences and culminated in the production of the style of architecture which we see at Mamallapuram". The Sudlai madan pillar also is quite like a North Indian Śikhara temple

The similarity of the graves of priests at Mudabidri and of the Sathmahal Prasad of Ceylon with the South Indian temples is more striking than that of the other South Indian structures mentioned before. But it must not be forgotten that the hill tribes of India are living side by side with the cultured Aryans for such a long time that it is difficult to distinguish from amongst their culture, the primitive ones from later customs borrowed by them from their Aryan neighbours. The surviving dolmens in the Deccan may give an idea of the earliest South Indian temples, but they are not sufficient to explain the real origin of the forms of the later Dravidian temples Thus what Dr Ramannaya and Longhurst think about the origin of the South Indian temples can only partially explain it

Dr Ramannaya's contention that the Mahabalipuram Rathas were not the earliest temples of their kind, however, is very true There were certainly temples in South India before the 6th century, as is proved by the inscriptions referred to by him (His Book, p 63-64), and some of those temples might have been similar to those depicted in Ajanta paintings and Amaravati sculptures which were akin to figures of temples found in Bharhut and Sanchi sculptures. They, however, cannot be taken to really explain the forms of the Dravidian temples of the later period Dr. Dubreuil's contention that Mahendra Varman began to execute in stone the same form of temples as existed in brick or timber before him is also noteworthy (See Chap XXVIII). But what was the form of the pre-pallava temple has not been explained by any scholar. (It cannot be done with reference to cars, as done by Dr. Ramannaya).

We shall, therefore, attempt now to find out the possible

nature of temples of the South in the pre-pallava period. This can be done only with the help of the Indian Vāstu works. In the 6th and earlier centuries there were works on Vāstuvidyā in the North as well as South India. As I have already said, the study of Northern Vāstu works indicates that the Gupta temples of flat roof were preceded by various other kinds of temples in North India; so do the Vāstu works of the Deccan indicate the existence of temples in South India before the rise of the Dravidian style. Most of the available treatises on South Indian architecture, however, describe the Dravidian style, as shown by me before. Some of the texts, however, will come to our help in examining the matter in hand—I mean the Āgamas, or at least some of them and some references in the Śilparatnam and the Īśāna-Ś-Paddhati. I have tried to show in various ways that the religious works containing texts on Vāstuvidyā though compiled in a late period, contain the earliest traditions. On that criterion (except in case of the Śilparatnam) have I selected these texts as our guide in this matter.

From the study of these books, as I have already pointed out (Ch XV), we know that besides the various names of temples (which were made in Dravidian style) having one to twelve storeys, there were in South India two or three other methods of temple classifications in which the names of temples and their number are more similar with those found in the Northern works than with those in the other Southern treatises. This will be clear from the tables of temples attached. We again discuss the matter here in some detail. The Sūprabheda Āgama mentions twelve varieties of temples beginning with 'Meru, Mandara, Kailāsa and so on. Here we find the names are mostly given after the names of some mountains, some of Northern, and some of Southern India The Śilparatnam and Ī-Ś-G-Paddhati contain a list of thirty-two temples in which some of these twelve names are also included. There is another list of twenty temples in both the Śilparatnam and the Īśānaśiva-Guru P. in which some of the names are similar to

those found in the Sūprabheda Āgama and some names are almost similar to the names of North Indian temples. Thus these works having three lists of South Indian temples not only contain many names of North Indian temples but in the process of nomenclature also follow the North Indian method. The Śilparatnam itself and the Mayamatam contain another list of temples which are classified according to number of storeys and hence are undoubtedly the later temples in the Dravidian style. The Mānasāra contains a list of names which agree very little with the lists previously mentioned. The number of temples in all these also points to the fact that while the Sūprabheda Āgama contains twelve names, the Śilparatnam and the Īśāna-Śivaguru-P contain twenty in one list and thirtytwo in another. The Mayamatam contains fortyfive names and indicates existence of many others not mentioned (because it gives description of temples having one to four storeys only; and regarding those having eight to twelve storeys gives only general instructions without mentioning names). The Mānasāra contains names of 98 temples which do not tally with those in other works This comparison therefore clearly indicates that before the rise of the Dravidian style, there were in South India at first twelve, then twenty, and then thirtytwo kinds of temples differing not only in names but also in form from the Dravidian temples, and that many of these early South Indian temples might have been similar to the North Indian temples. Unfortunately for us the Śilparatnam does not give details of these temples, a fact indicating how the Śilparatnam, being a later work, intentionally suppressed or thought it unnecessary to give the details of those temples because they were extinct by the time it was written It, therefore, described only storeyed temples, built in the Dravidian style. The Sūprabheda Āgama being a short religious work could not give much of the details. The Īśānaśiva-G-P. however gives some descriptions. The Sūprabheda Āgama, as already said before, contains references to the characteristics of the Dravidian temples—its Sthūpi, storeys upto twelve in num-

ber—as in the other Southern texts. But in the description of these early temples, it does not follow the classification according to the number of storeys. The I-Ś-G-Paddhati also describes these temples in the manner of the Āgamas. These descriptions are, however, too meagre to give us a clear idea of the form of these temples. But I think it will not be a mistake to conclude from these works that there was, before the rise of the Dravidian style in the 6th century A D. (or a bit earlier), another style prevalent in South India. There is also a great possibility of some of these temples having been in many respects similar in form to the North Indian temples. It is also remarkable that the earliest Southern texts (Mayamatam and others following it) while describing the Śikharas refer to eight kinds of the height of the Śikhara, all of which are named after North Indian countries[1]. It is also in these early classifications that we find temples are called Prāsādas as in the Northern texts, whereas in the later texts the word used is Vimāna or Harmmya (In the Kāśyapaśilpa, a very late work however, all these terms are synonymous—showing the confusion that arose in later times).

That the South Indian (Drāvida) temple had a different form in an earlier age is also supported by the Hayaśīrsa Pañcharātram Ms In describing the 'Drāvida temples it says (Ch 19) that its 'Śukanāsikā' shall be adorned with 'leaves and creepers'. Now, Śukanāsās or Nāsikā has been taken by scholars to refer to a part of the curvilinear Śikhara. The Hayaśīrṣa reference to the 'Śukanāsikā' of Drāviḍa temples will therefore go to show how South Indian temples also were at one time built over with a curvilinear tower, though the Hayaśīrsa itself says that in place of Āmalaka, there was something else at the top of the Śikhara, perhaps a Ghaṇṭī (as has already been noted before).

The passage is quoted below.

नागरेन प्रमाणेन कृत्वा अंथांश भूमिका ।
ततोधिकंतु यत्कर्म द्राविडंतत् प्रकीर्तितम् ॥

[1] Mayamatam, XVIII, 10.
Śilparatnam, Chap. XXXII.

कपोतक्रमसूत्राणि अर्द्धनाधोमुखानि तु ।
स्तम्भावनियुता जंघा पत्रवल्योपशोभिता ॥
मेखलान्तरपत्राणि तथैव शुकनासिका
प्रासादेहे तेषान्तु वालस्व: (?) सर्वत: स्थिता: ।
कपोतौ चन्द्रशालाच श्लक्ष्ण स्तम्भयुत गलम
अमलसारकस्थाने + + + + + + + तेषामधोमुखी ॥
प्रमेयं द्राविडी प्रोक्ता ....

If we accept this view, it will prove that for a long time South Indian architecture had been under the influence of North Indian architecture This will explain how the Deccanese temples were also later developments of the temple-style discovered in the Bharhut, Mathura and Bodh Gaya temples This may also partially explain how the Chezarla and the Ter temples and the Shahadeva's Ratha at Mamallapuram could be similar to the Buddhist Chaityas without being imitations of those Buddhistic buildings (the earliest North Indian traditions being continued in the South till the time of these temples) This North Indian influence will also account for the similarity of the Durgā temple and the Hucchimalligudi temple at Aihole (of the sixth century) with the North Indian temples The Dravidian style had already arisen in the South, but temples continued to be built in the older style. Even in the cave no. 3 of the time of Mamalladeva, Longhurst notices the influence of northern masons in construction of the pillars (Pallava Architecture, Part II, p 14) We have not then to assume, as Dr Ramannaya has to do, that the similarity of the Dravidian temples with Northern temples arose out of the coming of the Aryans to the South earlier than the time of the Buddha—an argument which is defective as not supplying the intermediate link. Though the influence of local (South Indian) structures on the Dravidian temples cannot altogether be denied, Dr Ramannaya's other contentions cannot be fully accepted. The facts stated above also remove the necessity of acknowledging Buddhistic influences on the Dravidian temples (or on the Boa shrine superimposed on the dolmen temple, as Dr. Ramannaya

thinks). This, therefore, reveals to us the form of the pre-pallava temples of the Deccan. The difficulties noted above about the origin of Southern temples from a car are also removed by this.

Once we accept the influence of North Indian Śikhara temples on the architecture of the Deccan, we may presume that at first the Dravidian temple style was a further development or a slight variation of the North Indian style influenced by local conditions and traditions. The later South Indian temple-Śikharas of Dravidian style were perhaps the imitations of Indian residential houses of the Vimāna type (or Śālās with a tower, as the Mayamatam defines it—see p. 69). The subsidiary structures found in a Dravidian temple might have originated from already existing ancient South Indian buildings of other types. Thus from another point of view, I have come to the same conclusion as Mr. Saraswati did about the origin of the Dravidian temples. "There can be no doubt" writes he (Indian Culture, VIII, p. 189), "that the Dravida temple is an adaptation of the earlier storeyed form of the Gupta temple, enriched further by elements in the matter of details, which may be said to be of local origin". I, however, object to the use of the "Gupta temple" in this observation of Mr. Saraswati, as I have said so many times before and also in this chapter, that storeyed form of the North Indian temples had originated much earlier than the Gupta period. What I have said here about the origin of the Dravidian style will also explain the Dravidian features which Mr. Saraswati discovers in the Parvati temple at Nachna Kuthara and the Śiva temple at Bhumara, and the Lād Khan temple at Aihole This also accounts for the Northern and Southern types occurring side by side at Aihole and Pattadakal. I cannot also agree with Mr. Saraswati, for reasons stated so many times in this book, in his contention that the Gupta period "supplied the basic foundation of the subsequent Indian architecture". Nor do I accept his statement that the history of the two styles—Nāgara and Drāviḍa, or at least of the Nāgara, should be associated with Indian

architecture which was only subsequent to the Gupta one. The Drāviḍa style, as I have shown, existed from the pre-Gupta period if not earlier. The origin of the Nāgara-style will be discussed later on. The Gupta period cannot also be regarded as the "formative and the creative" age of Indian architecture. The earlier North Indian and South Indian temples have disappeared, but that does not prove that Gupta period saw the rise of temple architecture. The Vāstuśāstras may prove my statements.

We have already discussed the question if Hindu temples had originated from the Buddhistic structures. It has been shown that it was the Buddhists who copied the Indian structures, the Prāsādas, the Harmmyas, Vihāras, Chaityas, Stūpas etc which had been existing from the pre-Buddhist period. It will not be here out of place to discuss the question whether Indian architecture can be classified into Buddhist, Jaina or Brahmanical styles of architecture Eminent scholars have nowadays rejected that system altogether Coomaraswamy says that "a sectarian classification is quite misleading". His view we may further support from what has already been written before in this chapter All buildings—Buddhist, Jaina and Brahmanical—were built in the "Indian style of their period". Here it may be pointed out how the Buddhists also imitated the Hindu styles. Besides the Prāsādas, Harmmyas, Stūpas and Chaityas (as discussed before) we find in actual specimens of Buddhist art, that the Buddhists imitated Hindu temples. A Sarnath door lintel, of the Gupta period (Cat. Sarnath Museum plates XXV ff.) undoubtedly of a Buddhist building, contains the figure of a temple which has an Āmalaka at the top We have already shown that the Āmalaka was a peculiarly Indian motif the existence of which may be traced to the 2nd century B.C. and even in the Gupta period. We may take this, therefore, as a clear evidence of the fact that the Buddhists here built in the Brahmanical style of the Gupta period or as Coomaraswamy writes "the Indian style of their period". The chapter on the Indian doors (Ch. XXIV) also indicates how even in the construc-

tion of doors of their temples the Brahmanical (better, Indian) traditions of architecture were followed by the Buddhists.

We shall then discuss if Fergusson's classification of Indian architecture on 'ethnical principles' has any truth in it—whether Indian architecture may be classified into Indo-Aryan, Dravidian and Chalukyan. Regarding this matter, we have already shown that in the earliest period there were in India undoubtedly two kinds of architecture —the Aryan and the non-Aryan (which included that of the Asuras and the Nāgas) or the style of Viśvakarmā and the Drāviḍa style (also perhaps a Nāga style). That was, however, in the dim pre-historic past, for, with the dawn of the historic period, we find all the various Aryan and non-Aryan styles of art (and other aspects of culture too) thoroughly assimilated into one style, the Indian. It was the remembrance of this earliest stage that led to the classification of Indian architecture into Nāgara and Drāviḍa, as found in the works on Vāstuvidyā. In the historic period, slight variations only could be found among these two styles, and in later periods local variations of these two led to the rise of various orders based on Geographical and time factors -viz : the Vesara, the Lāṭa, the Vairāṭa, the Bhūmija, Kalinga, Andhra etc

In the next chapters we shall deal with this assimilation of the Aryan architecture with the non-Aryan ones and also shall show that the Nāgara was a later development of the Indo-Aryan style of North India, and the 'Dravidian' style (of Fergusson) was a later form of the old Drāviḍa style. It is, therefore, that the word 'Dravidian' has been used by me to indicate the South Indian architecture after the sixth century A.D. and the word 'Drāviḍa' to refer to the earlier non-Aryan architecture of India which, as shown before, was not limited only to the South.

The Indian architecture, therefore, was not based on sectarian principles, but was undoubtedly the outcome of the mixture of ethnic and geographical factors.

APPENDIX F

MEANINGS OF PRĀSĀDA IN THE LEXICONS

1. Amarakosha —
   'Syāt Prāsāda Devakulam' (Cf. Purushottama)
2. Abhidhānachintāmani (Hemchandra)
   "Prāsāda Devabhūpānām".
3. Abhidhāna Ratnamālā (Halāyudha)
   Grhamistakādiracitam Prāsāda Devatānarendrānām.
4. Commentary of Ramayana
   "Prāsādah Tribhumikah"
5. "Vimāno strī devayāné Saptabhumau ca Sadmani".

Chapter XXVII

ASSIMILATION OF ARYAN AND NON-ARYAN CULTURES IN THE VĀSTUŚĀSTRAS

The Aryan influence on the Deccan and its architecture is of course a well known fact. But scholars were so long at a loss to explain how the Northern temples and the Southern (Dravidian) temples could evolve almost at the same time (6th century A.D.) in two different ways. They, therefore, had to make the assumption that both these styles of temple architecture were influenced by the Buddhist stūpa and the Chaitya. It was due to the prevailing idea that there was no temple architecture in the North before the Gupta period, flat roofed temples were first created in the Gupta age and then came those with the Śikharas. But as indicated before, while the Matsya Purāna, and the Viśvakarma Prakāśa could describe twenty types of temples and as moreover, the Matsya Purāna text was based on others of a very early period (age of which might be pre-Buddhistic or at least not later than the 1st century A.D.), it is not difficult to conclude that temple architecture had grown up in India long before the Gupta period Dr. Jayaswal's belief that the Nāgara architecture was so called because it was evolved by Bhāraśiva Nāgas in between the 2nd and 4th century A.D. need not be accepted (See Ch. XXVIII) if we remember that Nāgas lived in India long before the Bhāraśivas rose into power. The Vishṇu Purāṇa (II V. 26) shows that Garga learnt astrology and astronomy from Śeṣa Nāga. We have shown that Garga was an earliest authority on Indian architecture. So it may be suggested that Garga was the founder of Nāgara architecture under the inspiration of Śeṣa (not necessarily the Nāga king whom Jayaswal has placed in about 110 B.C.). That of course need not mean that no temple architecture existed before that period. It might be that the oldest Indian architecture was different from the Nāgara in that (see next chapter) it was brick

and wooden architecture and the Nāgara one was of stone. But until the history of these ancient Nāgas of India be definitely known, it cannot be said if the Nāgara architecture really was the creation of the Bhāraśiva rulers or it was in any way associated with Nāgas of ancient India. The existence of pre-Gupta Śikhara-temples in any case cannot be denied.

The Buddhistic influence which has been discussed already is definitely absent in case of these Śikhara temples of the North. This is also likely that there were temples in South India built in the Northern style before the Dravidian style originated. But the temples at Ter and Chezarla really present some difficulties due to the apsidal form of the ground plan. The form of the roof has been explained above. As regards the ground plan we may acknowledge some indebtedness to the Buddhists. But it must be remembered that the early Dravidian temples did not follow this apsidal form in the ground plan. The temples at Ter and Chezarla which exerted no permanent effect on Dravidian art may therefore be regarded as two examples of exotic origin, due to the influence of Buddhism which prevailed also in the Deccan (see next chapter).

Then comes the question of Aryan influence on Dravidian architecture Though it has been suggested above that the Dravidian temples arose as the result of the existence of older temples of Northern style in South India, that does not mean that all the South Indian temples before the 6th century were constructed in the style of North India. That there undoubtedly were temples built in a different style, is indicated by the fact that the earliest names of temples of South India found in the available texts (as discussed before) were not all similar to those of the northern, temples. These early temples of South India, like those of the North, have not yet been discovered or have been totally destroyed.

It is not at all difficult to assume that when the Aryans came to the Deccan they influenced not only their religion but also their art. This is also apparent from the study of

the Vāstuśāstras. It has been already said that a Vāstuvidyā was existing among the Drāviḍas from a very early period. The writings of Maya, Nārada, Śukra might have existed among the Drāviḍas long before the 6th century B.C. It has also been suggested that though originally there was some difference between the Vāstuśāstras of the North and those of the South, a time had come when the same essential principles were followed by both the schools. The North Indian people acknowledged the authority of the Southern architects and those of the South did the same regarding the North Indian architects (Vide the list of writers of Vāstu in the Matsya Purāṇa and the Agni Purāṇa). Though Viśvakarmā was primarily a North Indian authority he was acknowledged as such by the South Indian writers of architectural treatises. I have further shown that many North Indian texts were also adopted by the Dravidians and given new forms by them (Vide Ch. X, XIII above) to suit their own architecture. It was in a very early period that the North Indian temple style must have influenced the South Indian one. In what period of history this occurred is difficult to solve. If the Nāgara style is associated with the Nāgas, we may assume that the Nāgara architecture also spread to the Deccan after the Andhras when the Nāgas were rulers thereof.

Several factors regarding the last point may be suggested. A perusal of the early chapters of this book will show that from the sixth century the two schools became more independent of each other. The Dravidian style was now evolved in the south and new treatises were written solely devoted to this new style (but religious works could not give up the old traditions, because a house built in a new fashion might cause some danger to the owners or builders of houses) and divisions of Nāgara and Drāviḍa temples were fully remembered. The Bṛihat Saṃhitā refused to accept the opinion of Maya and Nagnajit. We may, therefore, conclude that from the 6th century the assimilation of the two arts again stopped. Going backwards we find that scholars are of opinion that the spread of Aryan culture in

the South had taken place before the time of Pāṇini i.e., 7th century B.C. or at least before the Nandas (4th century B.C.).

We may have a glimpse of a still earlier period from the study of the Brāhmaṇas. The story of Nagnajit in the Aitareya Brāhmaṇa indicates that his opinion was rejected by the author of the Brāhmana because perhaps he belonged to the Drāviḍa school. If Nagnajit was an architect king of the Vedic period, as Late J. C. Ghosh wrote, we may say that this difference between the two schools had grown up even in the Rigvedic period. But it must be borne in mind, as also noted before, that the difference between these two schools in this age too was very slight and not essential. The Brāhmana indicates that the Dravidians of that time had taken to building of the fire-altar and the study of the Vāstuśāstra. This shows that the Dravidians were already converts to the Aryan culture, though they perhaps had retained their individuality to a certain extent In the period of the Śatapatha Brāhmana they were building Śmaśānas, but round in form Thus we may conclude that a mixture was going on between the Aryans and the Drāviḍa culture (including their art) in a period earlier than the latest phase of the Rigvedic period The Rigveda certainly was completed at a time when the two cultures had already been amalgamated[1]. During the discussions about bricks (Ch. XXV) it has been also pointed out that the traditions of the Harappa bricks were accepted and continued by the Aryans of a very late period Those scholars who believe that temple architecture was learnt by the Aryans from the non-Aryans shall have to prove the age when this event took place. Marshall is of opinion that though icons were known to the Mohenjodaro people, no building can be definitely identified with a shrine. If temple architecture arose after this period, it is really difficult to say who, amongst the Aryans and non-Aryans, were indebted to the other for

[1] The references to Asuras and Devas as being born of the same parents might be attempts to reconcile the two races.

temple building. The Aryans might have accepted the non-Aryan gods at that time, but that will not prove that their temples were also creations of the non-Aryans. Further light on this matter may be thrown only with the full realisation of the nature of the Indus Valley culture. But the Vāstuśāstras definitely fills up a gap between the earliest civilisation and the Vedic culture of India.

A further picture of the stage when the asimilation between the Aryan and non-Aryan Vāstuvidyā was taking place may be gathered from the story of the Vāstunara found in all Vāstu texts. A summary of the story is given here as described in the Matsya Purāna (Ch. 252).

"During the war of Śiva with the Asura Andhaka, a terrible being was born from the sweat of his forehead and drank the blood of Andhakas who had been killed in the battle. But as he could not still satisfy his hunger, he began to perform worship of Śiva who gave him a boon viz. capacity to devour the three worlds. He then covered the three worlds by his body. The gods, Dānavas, Asuras, Rākshasas all got freightened thereby and surrounded him, along with Brahmmā and Śiva. The demon could not move any more by being pressed in different parts of his body by different gods. As the gods also remained on his body, he was called 'Vāstu' (Literally a place where gods and people live). After that Brahmmā gave the demon a boon to the effect that the Yajña performed for propitiating Vāstu at the time of construction of a structure will be his food. From that time the Vāstu Yāga ceremony became prevalent in this world" (cf. The Gayāsura legend).

This is the story related in practically all the books. The Viśvakarma Prakāśa says that the war took place in the Tretā Yuga. The matters to be noticed in this story are many. First of all, the occurrence is of a very early date. Secondly, though the incident occurred during a war between Śiva and the Andhaka, Asuras took the side of the gods in suppressing the Vāstu demon. The story therefore may contain a hint that the Aryans and non-Aryans of India began to worship Lord of Vāstu found in the Rigveda where he is

identified with Indra and other gods (See Ch. I). Does the story contain a suggestion to the effect that both the Aryans and non-Aryans learnt architecture from another common source and that the ceremonials connected with house-building were performed by both the Aryans and non-Aryans? As the ceremonials are found in the Vedas, we may infer that this system began in the pre-Vedic period. The worship of Vāstu is also found enjoined in all the works of South India. The story therefore suggests that if the Aryans were indebted to the non-Aryans for architectural principles or vice versa, the exchange of ideas took place in the pre-Vedic period.

The story of Nagnajit and Prahlāda as related before (Chapter X) may indicate that there was an Asura or Dānava or Draviḍa school of architecture not only in the Deccan but also in the North of India The Śatapatha Brāhmaṇa further places the Asuras in the eastern parts of India. The identification of the Asura school with the Dānava school of Maya, as hinted before, will indicate the existence of a Drāvida culture in North India. If the Dravidians came from outside by the western passes and left tracess of the language in the Brahui language, we may guess another legacy of theirs in the form of a Northern and an Eastern art. The Mohenjodaro culture was identified by late R. D. Banerjee with the Dravidian one (Also Dr. S. K. Chatterjee in Modern Review). If that culture be similar to that of the ancestors of the Assyrians, the Asuras of the Indian literature might also be identified with the people of the Indus Valley The Asuras, the Dānavas and the Drāvidas, therefore, become identical. It also points to the fact that the culture found at Harappa and Mohenjodaro spread at one time over the whole of India and the Himalaya region and even beyond (Maya being associated with the Kailasa Mountain and Nagnajit's friend and preceptor being the king Prahlāda of Balkh who himself was also an expert in Chitravidyā, a matter intimately connected with the Vāstuvidyā). Remains of this culture have

recently been found in Guzerat, in Delhi region and even Bengal.

The fact of the existence of a Drāviḍa art in Gandhara region, as hinted here by the story of Nagnajit and Prahlāda, may also be supported by actual history of Indian art. Mr. J. C. Ghosh tried to show similarity of the Mohenjodaro Art with the Gandhara Art, regarding the qualities of those arts. We may, however, notice even similarity of the South Indian art with the Gandhara Art, which may be explained by regarding these two arts as branches of the same stock. The influence of Gandhara art on that of Amarāvati has so long puzzled the scholars. It could not be explained how the centres of these two arts being separated by such a distance could exert influence on one another without leaving any connecting link in the intermediate localities. We may now say that as both the arts were offspring of the same mother stock (viz. Drāviḍa art), the similarity is quite possible and natural. Similarly, in another matter we find the similarity of South Indian architecture with that of the Gandhara region. In the following passage is quoted Fegusson's opinion: "Among the sculputres of the Gandhara monasteries are several representing facade of buildings. They may be cells or Caitya halls, but, at all events, they are almost exact reproductions of the facade of this Ratha" (i.e. Sahadeva's Rath of Mamallapuram.—Fergusson, Indian and Eastern Architecture, Vol. I, p. 336 f.n. 2 and woodcut no. 123, page 216). "Being used as frame works for sculpture, the northern examples are, of course, conventionalised; but it is impossible to mistake the identity of intention". These similarities might not have been accidental, but were the results of ethnic or cultural affinity of the South Indian and the Gandhara peoples. Rev. Heras (J.B.B.R.A.S., 1936) tries to prove that the Afghanistan Hadda sculptures as well as the Gandhara sculptures were the result of revival of Dravidian art of those territories. Even Asokan art, he believes, was the work of Dravidians.

This has been further suggested by Dr. Kramrisch (J.I.S. O.A., XII, p. 198). "The plan of the Buddhist Rock cut

monasteries in Ajanta, Nasik etc. does not differ in principle from the stone-built Buddhist monasteries in Gandhara". She therefore, suspects that Vihāras which existed before the rise of Buddhism were adopted by the Buddhists later on. She has found similarity of the court of the Stūpa at Takhti-Bahi with open air temples found in many places in India; "But it is also preserved in the surrounding wall of cells of some of great temples set up by the Pallavas in South India. the Shore temple at Mamallapuram and the Vaikuṇṭha Perumal temples at Conjeevarum". All these similarities may not be accidental.

The relation of the Mānasāra (or Agastya's work on architecture, of which the Mānasāra was a later compilation; and Agastya was primarily a North Indian sage) with Vitruvius, as already explained, might also have been due to the existence of the Drāvida Vāstuvidyā in the Northwestern parts of India where Greek architects and Drāviḍa ones combined to give birth to the existing Gandhara art. These discussions may throw further light on the early civilisation of India and the Drāvida culture

Further light on the influence of the Asuras of the North-West and Eastern parts of India on Indian architecture may be thrown by the administrative history of the Samghas. Panini refers to a class of Samghas called the 'Āyudhajīvi' and Kauṭilya also mentions them as 'Śastropajīvin'. According to Panini they were in Vāhika and Trigarta in the Punjab, the Yaudheyas, Parsus, Asuras and Rākshasas. Similarly we get in the Arthaśāstra the names of 'Rājaśabdopajīvi" Samghas in Eastern India viz. the Licchavis, Vajjis, Mallas, and in the North-west the Madrakas, Kukuras, Kurus and Pāñchālas. Dr. Bhandarkar has discussed (Charmichael Lecture No IV) in this connection that many of these Samghas were foreigners I think that Panini's 'Āyudhajīvin' and Kautilya's 'Rājaśabdopajīvin' are identical The inclusion of Asuras in this list and the existence of such Samghas in Eastern India are further proofs of the existence in the North-west India and Eastern India of an Asura culture. The word Rājaśabdopajīvi

and Rājanya of the Brāhmaṇas also, therefore, appear to be variations of the same word. If Rājanya Nagnajit of the Brāhmaṇa be identified with the Asura king in the Mahabharata, this will verify Panini's statement that the Āyudhajīvi Saṃghas were found amongst the Asuras. The Arthaśāstra further proves the existence of these Rājanya or Rājaśabdopajīvi Saṃghas in Eastern India. It is because these Licchavis were Rājanyas (or Asuras) that they were called Vrātya Kshatriyas. 'Rājanya' therefore may be taken to be the caste to which the rulers of the non-Aryans, the Draviḍa rulers of old, were relegated when they had accepted the Aryan culture. They were not 'Kshatriyas' but 'Rājanyas' or 'Vrātya Kshatriyas'.

Late Ramaprasad Chanda had suggested that the Kshatriyas were perhaps the old rulers of the non-Aryans who had submitted to the Aryan priest (Arch. S. Memoirs). It is suggested here that they were originally called Rājanyas as the Vedas call them, and later on Vrātya Kshatriyas and were not given equal position with the Kshatriyas. It might be that those who accepted the Aryan culture in toto were made Kshatriyas, but those who still retained their old habits, customs and some features of their religion and art were Vrātya Kshatriyas and continued to be Rājanyas whose opinions (as that of Nagnajit) regarding a construction could not, therefore, be acceptable to the Aryan sage of the Brāhmaṇas. The Rājanyas differed from the Aryans not only in religion and art but also in their form of government. They preserved their democratic constitutions which were perhaps the oldest form of government of the Asuras (Drāviḍas) in India. It may be that because the Rājanyas were descendants of the Asuras or Drāvidians, the Southern Vāstu-works of the Drāvidas assigned the 'Drāviḍa' temples to the Kshatriyas (Rājanyas in later periods were taken as equivalent to Kshatriyas) and Nāgara ones to Brahmins (See Pisharoti in Indian Culture). This tradition was, therefore, preserved in those Vāstu texts, as the form of the Nāgara temple of the Brahmins (or Aryans) was remembered to be a 'square' one, even long after

the original significance of the caste names and names of architectural terms Nāgara and Drāviḍa was forgotten in India. This may further prove that the Drāviḍa Vāstu-works of even later periods were based on very old texts containing old traditions of Indian culture.

Besides the Asura influence on Indian architecture, we may trace also the influence of another non-Aryan tribe on it. It was the Nāgas. The two styles Nāgara and Drāviḍa indicate that though Nāgas of ancient India and Asuras (Dānavas or Drāvidians) were sons of the same parents as recorded in the Indian traditions, they differed in their culture, if not ethnologically. Asuras cannot be therefore totally identified with the Nāgas as has been done by Dr. A. P Sastri (J.B.O.R.S., Vol. XII). As the Asura culture continued to exist in various parts of India even upto the time of the Buddha (the Republican States of Eastern and Western India) so did the Nāga culture in some parts thereof (as at Rajgir and Taxila[1]), as is indicated by so many legends of Buddha's life. These Nāgas also preserved old traditions of their art and contributed later on to the growth of Indian architecture—the origin of the Nāgara Art.

Regarding the story of the 'Vāstu Purusha' narrated above, it has been suggested that the Aryans and the Asuras might have learnt architecture from a common source. This common source might have been the Nāgas. In fact, some of the Vāstu works call the Vāstu a Nāga (Vāstunāga). It might be that the story gives a hint to the fact that when the Aryans (Śiva who had already been accepted as a God by the Aryans) were fighting with Asura Andhaka (were they the ancestors of the Andhrakas or Andhras?), suddenly the Nāgas appeared on the scene and made an attempt to conquer India. The Vāstunara is said to have originated from the sweat of Śiva. This shows that the Nāgas were related to Śiva. Śiva might have been really the God of the Nāgas (See also B. P. Majumdar's article in Patna Univer-

[1] I am indebted for some of these references to Nāgas to my colleague Dr. B. P. Majumdar whose article on the Nāgas has been published in the Patna University Journal, Vol. II, Nos. 2 & 3, pp. 72-93.

sity Journal). The whole story, therefore, may be taken to be referring to the fact that the Devas (Aryans) and Asuras (Dravidians) accepted Vāstuvidyā and architecture from the Nāgas. The conquered Nāgas became conquerors of the Aryans and even the Asuras.

It is also possible that Nāgas were tree worshippers. The Mohenjodaro figure of two serpent-like beings coiled round a tree points to that fact. The Nāgas are depicted on the Bharhut gateway as worshipping the Bodhi tree. The Chaityas, it has been shown, perhaps were originally round buildings erected over the sacred trees. It might be that the Chaityas were originally Nāga buildings, though it has been said that they were later on erected by the Aryans around fire-altar. The Buddhists laters on might have accepted these Chaityas as the model for their places of worship.

This discussion about the assimilation of Aryan and Non-Aryan architecture is just a suggestion which may be plausible only if we knew more about the Aryans and the Non-Aryans. The author now holds a view in many respects quite different from what is expressed here (See Authors "Cult of Brahmā"). But this chapter is still retained, because the study of the Vāstuvidyā may really give rise to the hypotheses made here.

CHAPTER XXVIII

ORIGIN OF STONE ARCHITECTURE IN INDIA

THOUGH in the foregoing two chapters we have traced the origin of Indian temples, it has not been mentioned what materials they were made of. The antiquity of wooden and brick architecture has been already indicated. But the origin of stone architecture is a very perplexing question of Indian history.

In the Rigveda, it has already been noticed, stone built houses have been referred to. But many scholars think that those references merely indicated strength of the houses, while others think that stone-built houses or Puras belonged to the Asuras only (Chap II). Mention of stone buildings in the Epics has similarly been considered as merely imaginary descriptions, and those references are very few in number (Chap. V and VI). In the Jatakas, a palace of stone has been referred to in connection with a fairy land. Use of stone for making various articles, including pillars, is, however, indicated by many references in the Jatakas (Ch VII). Stone was also used in floors and in the walls upto a certain height All these references indicate that a house made wholly of stone was a scarce thing in India; and scholars are of opinion that stone houses were first constructed in the time of Asoka

But against this view should be considered two things. Firstly, the Cullavagga refers to the fact that the Buddha permitted his disciples to construct houses with walls, floors and even roofs of stone (See Ch VIII). It is quite likely, therefore, that even at the time of the Buddha, stone houses were not very rare in India. The date of the Cullavagga may be later than the time of the Buddha, but this reference is very likely based on genuine traditions. It shows at least that the Buddhists admitted that stone houses were not their creations but existed from before the period of Buddha's

life time. The Buddhists built their houses in the models of Prāsādas, Vihāras etc. which, as already discussed, existed before the Buddha.

Secondly, the Asokan art is a highly developed one and pre-supposes the existence of Indians' skill in building stone structures. Moreover stone buildings in some form existed at Rajgir from a very early period. The earliest cave temples also indicate some advance in the stone-cutter's art. Stone was also available in various parts of India. Under these circumstances, it is inexplicable why stone was not commonly used in building purposes.

We may thus come to the conclusion that stone buildings existed at least in some parts of India, but were not generally used by the Hindus. It was not due to their ignorance, but due to a prejudice against stone structures, for whatever reasons it might have been (It might be due to the fact that as Vedic Aryans lived in wooden and brick houses, they being strict followers of the Vāstuvidyā hesitated to depart from that tradition, and moreover because stone structures were made by the non-Aryans—See Ch. XXI). Stone houses were in early days erected by the Asuras and Nāgas—the Asuras of the Rigvedic period, the Nāgas and Asuras of Takshaśilā ("Takshaśilā" meaning 'cutter of stone'), the capital of Nagnajit (Vide J. C. Ghosh's article in Indian Culture, already referred to), and the Asuras and Nāgas of Eastern India mentioned in the Śatapatha Brāhmaṇa and Buddhist traditions But the Hindus lived in brick and wooden houses; and when they began image worship, they erected their temples in the style of their own habitations. They called their temples "the home (Ālaya, Āyatana and so on) of the Gods". No technical name was first given to the temples, perhaps because the temples were nothing but the replicas of the residential houses. Then gradually the term Prāsāda, originally perhaps referring to the king's house, and constructed of many storeys with a Vimāna (or Śikhara) on it, was given to the temple. But the temples were still made of bricks and wood. The first name of temples in North India was therefore 'Prāsāda' and the same name continued

in North India even afterwards, and therefore is invariably used in the North Indian Vāstu texts and even Gupta inscriptions. The Prāsādas of brick and wood were being constructed by the Hindus for the abodes of the gods till the 'mandiras' or temples of stone (as the Viśvakarma Prakāśa defines it—See Ch XXVI) were introduced. The question therefore arises when stone temples were created in India.

With the coming of Buddhism in North India, the newly made converts departed not only from their religious traditions, but also perhaps from their traditions in architecture. They began to build in stone and justified their action by relating that Buddha had allowed them (Cullavagga: See Chapter VIII) to live not only in Vihāra, Prāsādas and Harmyas (the old Indian type of buildings of bricks and wood) but also in the Guhā and houses made of wood, brick and stone. The Buddhists further began to erect round Stūpas, perhaps after the type of the Asura Śamśānas of Eastern India mentioned in the Śatapatha Brāhmana. They copied the Chaityas of the Nāgas and the Vihāras of ancient India which existed before the rise of the Buddhists, (See Chap. on Arch. in Pali Canons) S. Kramrisch (J.I.S.O.A , XII, p 198) also suspects that the Buddhists adjusted to their mode of worship and monastic life a form of religious architecture already in existence But the Buddhists, especially lay worshippers, could not give up the superstitious belief that houses may bring evil fortune if not made according to the Vāstuvidyā which had been followed by them since the earliest period (See Ch. on Principles of Vāstuvidyā; Ch. IV and XII). So the Buddhists even in making their Chaityas and Guhās of stone still followed the models of their old houses—of wood and brick So it is that when the early Chaityas and Vihāras were erected of stone or cut into rocks, the wooden models were not given up. This explains how the early caves—Chaityas and Vihāras, indicating an advanced stone architecture, could still display wooden models. The horse-shoe arch, the basket pattern decorations and all such things indicating

wooden origin were thus taken from the wooden houses of those days.

Stone architecture was thus popularised by the Buddhists, under the influence of wooden architecture of the Hindus modified by the technique of the Asura and Nāga stone architecture of Eastern and Western India. Asoka, according to Fahien and Yuan Chwang, employed Yakshas to build his palace, stūpas and his gigantic pillars (Legge Fahian, p. 77 and Watters Yuan Chwang, p. 91). According to Dr. Nihar Ranjan Ray (Maurya and Suṅga Art, p. 65) the term 'Asura' has been ascribed to the Mauryas by certain epic and Puranic authors. Was this due to the tyranny of the Mauryas, as Dr. Roy suggests, or were the Mauryas really Asuras (Moriya Saṃgha might be an Asura organisation) or were in alliance with the Asuras? Those scholars who believe that Chandragupta had secured the Magadhan throne with the help of the Hill tribes of the Punjab and that Chānakya came from the North-west will get support from the fact that the Arthaśāstra was perhaps related to the Drāviḍa school (See Ch. IX). Chandragupta's conquest of Kabul, Kandahar and Herat and Beluchistan from Seleukos brought the Maurya Empire again in contact with the Asura civilisation of the North-Western India. The difference in style which is noticed between the Asokan art and the oldest known sculptures of Yaksha figures (The Parkham, Patna and Didārgunge images) may be also explained by assuming that Asoka's relation with the North-Western parts of India led him to employ, in erecting his buildings and other structures in stone, the Asura masons of the North-West who were perhaps more advanced in stone architecture and sculpture than the Asura and Nāga masons of Eastern India who created the art noticed in the other early stone figures. This may also explain the difference in style noticed between some of the animal figures of Asoka (Rampurwa Bull etc.) and the other figures of his time (Sarnath and Lauriya Lions etc.) The former were executed by one class of masons and the latter by those from the North-West. Thus was created a Buddhist art

and architecture in stone under the auspices of the Mauryas, in which old Hindu traditions and Buddhist ideals were harmonised under the Asura and Nāga technique. The history of Buddhist stone architecture after the Maurya period is well known.

Though the stone architecture was followed by the Buddhists, the Hindus continued to build their houses, Prāsādas, and Devālayas in brick and wood. It is for this that we have not been able to discover any Hindu temple before the Gupta period The brick and wooden temples have perished for ever—the Mathura temple of Vāsudeva, the Heliodorus temple of Vāsudeva at Besnagar have not preserved for us the main temple structure. They were perhaps made of wood or brick Hindus had not yet erected their 'Mandiras' of stone.

It has now to be discussed when the stone temples were erected by the Hindus It may be suggested that it is the Nāgara architecture which first introduced stone temples among the Hindus I have already discussed that the earliest known writer on Nāgara architecture was Garga, who perhaps wrote his work in about, 110 B C. or not later than 1st century A D. under the inspiration of the Nāga Śesa. Garga followed the old traditions of the Aryan architecture of the Viśvakarmā school, but as he was indebted to the Nāgas, the style of temple architecture in stone that now arose preserved in it the Hindu traditions of Viśvakarmā school mixed with Nāga technique and was now called the Nāgara architecture. The masons who were now employed in erecting temples were so long working in building Buddhist stone structures, and perhaps could not at once give to stone temples all those forms which the Hindu models of temples of wood and brick could supply. They perhaps first erected only flat-roofed stone temples as at Tigawa, Nachna Kuthar and Bhumara. The curvilinear Śikharas came a bit later, though they were formerly created in wood and brick Thus it is that though Śikhara temples are referred to in literature and Gupta inscriptions, no specimen of those temples of the pre-Gupta period

have survived to our times. The flat-roofed stone temples need not be regarded as having originated in the Gupta period; but such structures must have been existing from the time of the rise of the Nāgara architecture in the second century B.C. (at least not later than the 2nd century A.D.). It is perhaps this earliest form of flat-roofed stone temples, the upper part of which was square or rectangular, that led to the idea of the Southern texts that Nāgara temples were square in shape (especially in the upper part).

Even after this origin of the Nāgara stone architecture, the Hindus hesitated to build residential houses in stone. The Viṣṇudharmmottaram says that "Sudhā and Śilā should be used in houses of Gods; Sudhā Śilā should not be given in Griha (residential house)."[1] Even the Mayamatam (Ch. 15) lays down that "stone should be used in the houses of gods, Brahmins and kings, and also of the Pāshaṇḍins, but not in houses of Vaiśyas and Śūdras". The Śilparatnam (Pt. II, Ch. 31) prohibits foundation of stone and even Sudhā in walls. It is for this that no specimens of civil architecture in stone of the ancient Hindus have been discovered. Made of bricks and wood, Hindu houses have crumbled down without leaving any trace for the posterity. Though stone temples were erected in the pre-Gupta age, even in the Gupta period, the Matsya Purāna does not mention the use of stone in civil houses (Ch. 254). It says, "The Bhitti (walls) should be of burnt bricks, the thickness of which should be $\frac{1}{16}$ the length of the walls; or they may be made of wood, or there may be earthen walls". A chapter in the Purāna is devoted to "collections of wood" (Dāru Āharaṇa) but not 'collection of stone'. But in case of temples it says, "temples may be of brick, wood or stone, constructed with arches (Toraṇa)" (Matsya Purāṇa, Ch. 269). Even as late as the time of the Mayamatam, a trace of the prejudice continued to exist (Mayamatam XXV. 187½).

Thus it may be concluded that when the Hindus found that stone temples of the Buddhists had not brought any

[1] 'Sudhā Śilā' has been taken by some scholars to mean 'white marble stone'. But I take it to mean Sudhā (lime) and Śilā (stone).

misfortune to the owners or the occupiers, they also began to create a stone architecture. Thus it was long before the Guptas that the Nāgas gave rise to the stone (Nāgara) architecture and began to erect stone temples in North India, as the Pallavas under Mahendra Varman I did in the Deccan. In the Deccan too, under the influence of the Hindus, the people were so long using only bricks and wood in building their houses and temples, and were following the old Vāstuvidyā of the Northern people (See Ch. XXVI). It must be remembered that the people of the Deccan are more conservative than those of North India (as the caste system even now indicates). So even while North India began to create stone temples, South India gave up the old custom after 800 years. The Buddhists, however, had erected so many cave temples there from the beginning of the Maurya period or later. Pallava king (perhaps related to the Nāgas, as Jayaswal believes) Mahendra Varman "caused to be constructed a temple without bricks, without timber, without metals and without mortar" (Mandagapattu inscription). He, therefore, as Dubreuil and others hold, was the first builder of stone temples in the Deccan This theory is further supported by the fact that the earliest Pallava buildings also contain wooden features· E. G double brackets supporting the cornice (Longhurst, 'Pallava Architecture', Pt I, pp. 10 and 11; Pt II, p. 14)[1] This style is popularly known as the Dravidian style Thus was the birth of the new Drāviḍa style out of the Nāgara stone architecture.

In connection with the wooden structures which might have been imitated by the masons at Mamallapuram, Longhurst, ('Pallava Architecture', Part II, p 20) says "It is usual to refer to buildings of this kind as Buddhist in style, but there is really no reason why the Brahmins of this period should not have also erected similar wooden buildings in the service of their religion and to have sometimes copied

[1] The Pallava king thus gave up old Hindu tradition of North India in making temples and built temples after the fashion of South Indian residential houses of the Vimāna type

them in stone, as they appear to have done here at Mamallapuram. The fact that no remains of such wooden buildings have been discovered does not prove that they never existed". Here Longhurst too thinks that the Hindus imitated the wooden structures. In the Mamalla period (7th century A.D.) the Buddhist Chaityas had assumed a developed form and shaken off all traces of wooden models. In building the Rathas the Hindus could have imitated these developed stone Chaityas and Viharas or temples erected by the Buddhists, as at Bodh Gaya, Nalanda and Sarnath and not the wooden Buddhist buildings of earlier periods. The fact that wooden models are found in these Rathas will, therefore, go to show that when these Rathas were constructed in stone, the masons were imitating the Hindu (and not Buddhist) wooden structures which were being constructed in the Deccan at that period; as, when stone construction was started in North India (as shown above) by the Buddhists, they took their models from wooden structures of North India of those days We shall then have to assume that even in the 7th century A.D., houses or temples in South India were being constructed in the oldest Indian fashion. There is no wonder in it. I have already said (Ch. XXVI) that the people of the Deccan were still following the Vāstuvidyā of the Northern School, retaining their old prejudice against stone buildings and constructing houses and temples in the Northern style (as shown in Ch. XXVI). (Hence the classifications of residential houses in the South Indian texts are similar to that in Northern texts). The wooden structures of North India which the Buddhists had first imitated, were still being built in the Deccan. Now when the Southern people shook off their old prejudice against stone buildings, and wanted to create a new temple style, they began to imitate the South Indian wooden buildings. I have already suggested (Ch. XXVI) that the Dravidian temples were constructed after the model of residential houses of South India of the Vimāna type or rather in a mixed form of Northern flat-roofed temples and towered houses of Southern India.

The Dravidian style might have been influenced to a certain extent by the local South Indian styles. It could not have originated from Buddhist Chaityas and wooden houses at the same time. The Ter and Chezarla temples of the 5th century A.D. were built at a time when the first exotic attempt was made by some Southern people to build a temple in stone. But the stone masons of the Deccan of those days were still acquainted with only the style of the Buddhist Chaityas and Viharas, and in making a Hindu temple in stone constructed it with the Buddhist plan and a North Indian Śikhara. This explains why those temples are to some extent imitations of the Buddhist structures with North Indian Śikharas. This style was given up when the Dravidian architecture arose, which resembles more the North Indian Hindu architecture than the Buddhist one (See Ch. XXVI). Dravidian architecture was a developed form of the Northern style; and the Southern Vāstuvidyā, though allied to Northern Vāstuvidyā, followed henceforth a new course Thus we may trace the origin of stone architecture and that of the Nāgara and Dravidian schools of architecture. As the extant Draviḍa Vāstu works, though based on earlier texts, arose after the 6th century A.D. long after the rise of the Nāgara one in the 2nd century B.C (a gap of 800 years), the Drāviḍa Vāstu works confused the real meaning of the words 'Nāgara' and 'Drāvida' and they forgot the characteristics of the Nāgara architecture, only remembering that Nāgara structures were originally square. Hence in the Deccan too, they built 'Nāgara' and 'Dravida' temples and added 'Vesara' ones in later times, not in the original sense, but meaning thereby square temples, hexagonal or octagonal, or round ones respectively.

This review of origin of stone architecture in India will solve many problems of Indian art. The Asokan pillars were executed not after the Persian models or by Persian or Greek architects, but by Indians of the North-west. Their difference from the other specimens of early Indian art has also been explained. The Buddhist Chaityas indicated a developed stage of stone architecture but they still followed the

wooden models. The early Hindus of North India had their Vāstuvidyā, their temples and houses but they have not been discovered, for the specimens of that art were made of brick and wood. The Dravidians of the South, long separated from their kins in the North-west and the East (their western branch being annihilated by Aryans in the Punjab and Sind) had also given up stone architecture when they adopted the culture of the Aryans (Hindus). So their old temples and houses have also perished. When the Hindu stone architecture arose, though the structures simulated partially the Buddhist buildings which were but offsprings of the old generation of Hindu (Aryan, Asura and Nāga) art, the style was really a continuation of the style of houses and temples which the Hindus of the North and South India were making so long with wood and brick. The Nāgara architecture was thus a later development of the Viśvakarmā school, and the 'Dravidian' architecture that of the Maya school.

As the Nāgas had their architecture even before the rise of the Hindu Nāgara style, it may be argued that the Nāgara style might have existed even earlier than the Second century B.C. to which period I have assigned the origin of the Nāgara architecture. The possibility cannot be altogther eliminated. But the difficulty in coming to that conclusion is that the name 'Nāgara' is not found in what I call the earliest Vāstu texts (The quotations, the Viśvakarma Prakāśa, Matsya Puraṇa and Bṛihat Saṃhitā). Though these texts, as already mentioned, really described the Nāgara architecture, the name might have been of later origin, and is found in the Hayaśirsa P., Agni Purāṇa and the Southern texts which I assign to a period later than those mentioned above. Therefore it is that I think that stone architecture or Nāgara architecture arose in the Second century B.C. and was but a developed form of the Viśvakarmā school, the old school of the Aryans of North India, modified under Nāga influence. If the Hayaśirsa Pañcharātram, on which is based the Agni Purāṇa might have been written in the Second century A.D. in which period

Dr. Jayaswal places a Nāga king named Haya Nāga, andfi he is identified with Hayagrīva the narrator of the Agni Purāṇa chapters and Hayaśīrṣa the author of the former work, in that case there might be reason for thinking of the origin of Nāgara architecture to have taken place in the Second century A.D. This is also another ground for supporting the theory of Jayaswal regarding the origin of Nāgara architecture. But we find that the Hayaśīrṣa describes a later form of Nāgara architecture. Moreover in that case we shall have to assume that while the Buddhists began to erect stone building in the 4th century B.C. the Hindus of North (who, as we have assumed, adopted the custom with the rise of Nāgara architecture) took long seven centuries to shake off their prejudice against constructions in stone. This does not appear to be probable. If we assume the rise of Nāgara and stone architecture of the Hindus to have taken place in the Second century B.C., the difficulty is to some extent overcome. Moreover, as I have said, when the available Dravidian works on Vāstu were written in the 6th century A.D. the orginal meanings of the words Nāgara and Drāvida had been confused. It was more probable if the Nāgara architecture arose in the Second century B.C. rather than in the Third century A.D. Moreover if the Hayaśīrsa and the Agni Purāṇa, which could not have been written after the 8th century, had confused the name of its author who was a man with a god of that name ('Bhagawān' used for 'Hayagrīva'), a longer period (2nd century B C. to 8th century A D.) has to be assumed to have lapsed between the composition of these works in 8th century A.D. and the time of Hayagrīva. Hayagrīva may not, however, be identical with the Nāga king Haya Nāga.

The various alternatives suggested above might lead scholars to even suggest that there might not have been any relation at all of the Nāgara art with the rise of stone architecture among the Hindus—the Nāgara art might have arisen in the Second century B.C. or Second century A.D. and the stone temples might have been introduced only in the Gupta period. The reasons for associating the rise of

stone architecture with that of Nāgara architecture may be summarised below:—

(1) The old school of North Indian architecture was known as the art of Viśvakarmā. About 2nd century A.D. or earlier with the rise of Garga we find the same architecture being called the Nāgara architecture. This change may be explained if we only assume that with the rise of Nāgara architecture, some very important change had been introduced in the architecture of North India. But as I have said, Nāgara architecture is based on traditions of the Viśvakarmā school. No other change except the introduction of stone temples—really a great departure from the prejudice of the Hindus against stone architecture—can be surmised.

(2) From the time of Garga a series of writers flourished in North India writing about the Nāgara architecture—which also indicates the rise of something new in the architecture of the Hindus about 2nd century B.C. (or A.D.).

(3) The Pallavas created the stone architecture in the Deccan. If they were related with the Nāgas of North India (as Jayaswal concludes) it is very probable that when those Nāga kings ruled in North India, they might have attempted the introduction of stone architecture in North India. The Nāgara art, if associated with them may thus be connected with stone architecture.

(4) As indicated in the last chapter (XXVII) it is very probable that Chaityas were at first the religious building of the Nāgas. The Buddhists after excavating their cave temples called them Chaityas. Impetus to the Buddhists in building these temples in stone might have been given by the Nāgas. It is therefore probable that when the Nāgara art was introduced by the Nāga Śeṣa (as the Vishṇu Purāṇa says) and his disciple Garga, the Nāgas might have attempted to introduce also stone in Hindu architecture. Stone architecture might have therefore originated simultaneously with the Nāgara architecture.

(5) Even if the Nāgara architecture arose in 2nd century A.D. (as suggested as an alternative above), we find the

Nāgas were still ruling in India. They had no prejudice against stone architecture, as the Aryans had. They had often worshipped the Buddha. The Buddhists had already created a stone architecture The Nāgas in evolving Nāgara architecture had no objection therefore in making stone temples, though they had been Hinduised already.

Against this, however, stands the fact that the earliest known stone temples are flat-roofed and that they belong to the Gupta period. It must be remembered, at the same time that the dates of all the temples which are known as Gupta temples are not definitely known except that of a few. This may be explained by saying that the pre-Gupta stone temples, for reasons unknown to us, have vanished. Cunningham discovered on the ruins of a temple at Gowror a fragmentary inscription with letters of the 2nd century A D. He believed that it was out of these ruins that later temples were erected there. This may explain the cause of disappearance of many of the earlier pre-Gupta stone temples of India. The roofs of Gupta temples being only flat might be due to the especial liking of the Guptas for this type of structures though other forms of Śikharas must have existed before them as is evident from description of temples in the Bṛhat Samhita and early Gupta inscriptions

On the other hand, scholars have assumed that early Gupta temples were all flat-roofed, Śikhara temples began only in the later Gupta period and that the Nāgara architecture (with curvilinear Śikharas, which according to them were the most remarkable feature of the Nāgara architecture) began in the later, or after, the Gupta period (8th century) (Saraswati's view above). In that case it remains a puzzle how the South Indian Vāstu texts could make a confusion about the true meaning of the words 'Nāgara' and 'Drāviḍa'. We are then to assume either that all the Southern texts are of a very late origin (not earlier than the 10th—which is not probable) or that Nāgara temples had originated (between 2nd century B.C. and 2nd century A.D.) long before the rise of the Southern texts (which took place,

according to me, in or after the Sixth century A.D.). The latter view therefore seems to be more probable. Dr. Jayaswal's theory of the relation of Nāgara architecture with the Nāgas is therefore supported (partially) by the study of the Vāstuśāstras.

Chapter XXIX

VARIOUS PHASES OF INDIAN ARCHITECTURE

FROM the study of the Vāstuvidyā from all points of view and applying it in cases of surviving architectural remains of India we may attempt to trace the development of Indian architecture and also its canons from the earliest time to the sixth century A.D., after which the development is well known to scholars. The different phases indicated below are shown in a table form annexed herewith.

1. Before the coming of the Aryans to India, there were in all parts of India the Asuras, Dānavas, or Drāviḍas and the Nāgas who had an architecture of brick as well as perhaps, of stone. Whether the Asuras or Drāvidas and the Nāgas might have possessed their Vāstuvidyā is difficult to infer. The answer is perhaps in the negative, because Vāstuvidyā, as in the Vedic period, was not of a highly developed character. It was related to primitive structures and not to a stone architecture and so it perhaps originated with the Aryans. Nothing can at present be said about the Vāstuvidyā of the Nāgas. Haya is known as an early king of the Nāgas and it has already been said that architectural chapters in the Agni Purāṇa have been related by a Hayagrīva, and the Hayaśīrṣa Pañcharātram is also perhaps a work of the same school. But these works, I have assigned to a later period (Ch. XVI) when the Nāga and Hindu art had already been amalgamated. A king of the Nāgas named Haya has been placed by Jayaswal in the beginning of the 3rd century A.D. and the date is not however incongruous with the style of architecture related in the Agni Purāṇa (see last chapter).

2. With the coming of the Aryans there was going on a mixture of the new comers with the Drāviḍas and the Nāgas. The Aryans possessed undoubtedly a Vāstuvidyā

and a master architect Viśvakarmā. The Drāviḍas after adopting Aryan culture evolved a Vāstuvidyā and master architects like Śukra, (Nagnajit ?), and Maya. From that time the Drāviḍa architecture and Vāstuvidyā began to flourish side by side with the Aryan Vāstuvidyā and architecture, differing from the latter in details but accepting the main principles of Aryan architecture. Side by side with non-Aryan stone architecture in the North-west, East and South of India, was growing the wooden and brick architecture of the Aryans in the Āryāvarta. Thus arose the schools of Viśvakarmā and Maya. This state of things existed, we may assume, till the Epic period.

3. The Aryans were then making progress in all parts of India and gradually between the epic period (Ramayana describing undoubtedly the earliest phase of Aryan migration to the South) and 4th century B.C. thoroughly aryanised the Deccan and eastern India. It was now that the Drāviḍa culture and art were highly influenced by those of the Aryans; and in some respects Drāviḍa influence on the Aryans too cannot be ignored. The Aryan gods and non-Aryan gods began to be equally worshipped by the Indians, giving rise to Hinduism, but the influence of Aryan art, religion and the caste system certainly predominated. The Viśvakarmā school and the Maya school were flourishing still, but the Deccan accepted even the Viśvakarmā school; and brick and wooden architecture began to prevail instead of the stone one. Hindu religion and Hindu art became inseparably connected. The same kinds of temples were erected in the North and the Deccan, some might be creations of the North and some of the South. Residential houses or civil architecture might have progressed in this period on two different lines, though even in this matter there also may be traced some influence of the North on South India. But in the North-western parts of India and Eastern India the Drāviḍa and Nāga stone architecture somehow kept up their entity. Traces of the Aryan and Drāviḍa Vāstuvidyā of this period have been collected in earlier chapters. Temples (Prāsādas) were erected in this period along with

the stūpas of the Asuras and the Chaityas of the Nāgas. In politics too we find the monarchy of the Aryans (Kshatriyas) flourishing side by side with the republican government of the Drāvidas (Rājanyas of the Punjab and Eastern India—the Vrātya Kshatriyas).

4 Then came Buddhism with its heterodox principles but not thoroughly at variance with Hinduism. In Eastern India first arose the art of Asoka, a mixture of Viśvakarmā school (Aryans) with that of the Drāvidas and the Nāgas. Round Stūpas, Chaityas, Prāsādas and Harmmyas were erected, besides the famous structures of Asoka, perhaps created by the Drāviḍa or Nāga masons of the North-west. Thus the stone architecture of the Buddhists, not altogether free from the Hindu principles, ran side by side with the wooden and brick architecture of the Hindus of the Viśvakarmā and the Maya schools. The works of the various writers on Vāstuvidyā of the Hindus were still current in society. Temples in brick and wood were still erected by the Hindus.

5. About the 2nd century B.C., the flourishing age of the Buddhist art, the Hindus changed their traditions of building their temples. When the Nāga Śesa and famous astonomer Garga produced the Nāgara architecture, stone temples were no longer a taboo. As stone was introduced, temples of various forms were erected Hindu architecture of North India entered a new phase of life. The Viśvakarmā school thus developed into the Nāgara school

But in the Deccan, the Maya and the Viśvakarmā schools were still followed The Hindu temples and houses still continued to be made of brick and wood, but the Buddhists had their cave temples, the Ajanta, Bhaja, Karle, Elura and the like. This was the state of architecture from the 2nd century B.C to 6th century A.D.

6. In the sixth century A.D. the Deccan had a new life. It had shaken off the supremacy of the Guptas; a strong political power arose under the Pallavas. The Pallava king therefore introduced the neo-Drāviḍa style in the Deccan. It was based on the Vāstuvidya of the Maya and the

Viśvakarmā school, but stone temple was no longer forbidden. This style was not to imitate either the Northern style or that of the Buddhists. It was this Drāviḍa style which now produced the 'Dravidian' style of Fergusson, and the old Drāviḍa Vāstu-works had also to be rewritten. The most important feature of these temples was the storeyed Śikhara; in the Vāstuvidyā too temples therefore had to be reclassified according to the number of storeys they poossessed The Mayamatam, the Kāsyapa's works and others had to be re-edited. But it must be noted that civil architecture did not much deviate from the old style, as the names of residential houses indicate.

7-8. After the sixth century A.D. Northern temples too gradually began to acquire various forms due to local influence and genius of the architects. The Nāgara school gave rise to the Lāṭa, the Orissan, the Bengal and Kashmira styles. In the Deccan too, the Drāvida style gave rise to the Varāṭa, Andhra, the Vesara, the so-called Chalukyan, the Chola, Hoyasala and Vijayanagara architecture. In the North the Vāstuvidyā appears to have gradually declined from the Moslem conquest after 11th century; or at least, we have not got many works; but in the Deccan, architecture and Vāstuvidyā developed more and more under the various Hindu dynastics from the sixth century to the Muhammadan conquest (15th century) and under Vijayanagara. Compilations of even the 15th century are therefore available to us. In North India the stronghold of Hinduism, Rajaputana, however, produced a Mandana Sūtradhāra whose works are available. (cf. Vāstusāra: J.U.P. Hist. Society, July 1943.)

Architecture and its canons (the Vāstuvidyā) went side by side with politics. Arthaśāstras of the Hindus had therefore always been connected with Vāstuvidyā. The writers of some of the works on Vāstu were therefore perhaps authors of the Arthaśāstra as well. Vṛihaspati, Śukra, Viśālāksha and others may be cited as examples. Kings like Nagnajit, Śeṣa and Haya Nāga (?) perhaps were also great architects. The fall of the Vāstuvidyā also synchronises

with the destruction of the political power of the Hindus. But as construction of houses was also inseparably connected with religion, matters of Vāstuvidyā remained incorporated in religious works of the Pratishṭhā and Nibandha classes. In South India only it was and is still a living art and the modern study of architectural works also first began in that part of India But the complete history of Indian architecture—how in it the Aryan, Drāvida and Nāga elements combined—may only be learnt from the study of both the Northern and the Southern Vāstuvidyā, more fragmentary in character though the former is than that of the South

Phases of art	*Materials*	*Phases of Vāstuvidyā*	*How known*	*Date*
1. Asura and Nāga Art (?)	Brick and Stone	Unknown	(Mohenjodaro and Harappa architecture)	Pre-Vedic
2. Aryan Art	Brick and Wood	School of Viśvakarmā	Chap. II-V of this book	Vedic to Epic period
Asura Art	Brick and Stone	School of Maya etc.	Do.	
Nāga Art	Brick and Stone (?)	Unknown	..	...
3. Aryan Art in North India	Brick and Wood	(i) School of Viśvakarmā	Known from quotations Ch. IX-X	From Epic to 4th century B.C.
Drāvida Art influenced by Aryan Art	Brick and Wood	(ii) Mixed school of Drāviḍa Vāstuvidyā influenced by Viśvakarmā School	Faint traces in Āgamas—quotations	Do.

Phases of art	*Materials*	*Phases of Vāstuvidyā*	*How known*	*Date*
4. Aryan Art limted to Hindus	Brick and wood	As above (no 3 i)	As above	B.C. 4th century to 2nd century B.C.
Mixed Drāviḍa Art limited to Hindus	Brick and wood	As above (no 3 ii)	As above	B.C. 4th century to 2nd century B C
Buddhist Art (mixture of Aryan, Asura & Nāga Art)	Brick, wood & Stone	Followed Hindu & other traditions to certain extent	..	From 4th century B.C.
5. Rise of Neo-Aryan Nāgara Art in North India	Brick, wood and Stone	Nāgara Vāstuvidyā of Viśvakarmā	Quotations of Garga and others	2nd centtury B C. to end of 4th century A.D
Mixed Drāviḍa Art of Hindus of Deccan	Brick and wood	As no 3	Faint trace in Āgamas & quotations	2nd centtury B.C. to end of 5th century A.D.
Buddhist Art	Brick, wood & Stone	Development of all traditions		Do.
6. Full-fledged Nāgara Art	Brick, wood & Stone	Vāstu Texts of North India	Mat P.; Viśva. Praś.; Bṛihat Saṃhitā	Gupta period to 6th century A.D.

Phases of art	Materials	Phases of Vāstuvidyā	How known	Date
Rise of Neo Drāvida Art The 'Dravidian' style	Brick, wood & Stone	Vāstu texts of Drāviḍas of Deccan	Āgamas Mayamatam and Northern texts rewritten	6th century A.D. onwards
Buddhist Art	...	...	...	6th century to 12th century
7. Nāgara, Lāṭa of North India and Varāṭa Schools	Stone	Works of all Schools	Hayaśīrṣa, Agni Purāṇa, Vishṇu-dharma etc.	6th to 10th century
Drāviḍa and Vesara School in South India	Stone	Extant texts of Drāviḍa School	As no 6	6th to 10 century
8. Nāgara, Lāṭa etc. in North India	...	Extant texts	Samarāngaṇa etc. Maṇḍana Sūtra-dhāra, Aparajita Pracchā	10th to 15th century
Drāviḍa, Vesara, (Chalu-kya) Andhra, Paṇḍya, Chola etc.	...	Kāśyapa, Mānasāra Śilparatna, I-Ś-G-Paddhati etc.	...	10th to 16th century

Chapter XXX

SCULPTURE AND PAINTING IN VĀSTUVIDYĀ

In the foregoing chapters, the Vāstuvidyā has been discussed with reference to only the architectural portions of it. But it has been pointed out that the Vāstuśāstra, being a part of the Śilpaśāstra, also included injunctions regarding sculpture and painting Many of the texts on Vāstuvidyā, therefore, contain, more or less, several chapters on the 'Pratimālakshana' and 'Citralakshana' referring to the above mentioned subjects. The former is specially concerned with religious sculptures or images of gods, and the latter includes canons on 'Citra' which meant in early times not only painting, as we understand the word (Citra) today, but also sculptures of various kinds. Vāstuśāstra, therefore, included the Citrasūtra or aphorisms on Citra, meaning both sculpture and painting and also the canons of making images (or icons) of gods which is now known as Iconography. The study on Vāstuvidyā will thus be complete with discussions on these subjects

The study on Vāstuśāstra with reference to sculpture and painting is necessary not only because the texts included these matters, but also because the Indians discerned a close relation between them, as well as between the Citraśāstra and the science of dancing and music. Buildings required decorations with sculptures and paintings, and the figures in such sculptures or paintings were to be proportionate to and becoming of the buildings where these were to be placed. Hence the canons of sculptures and painting were closely related to those of architecture. Moreover these figures were, to be artistic, represented in different moods and attitudes which also must have been proper and charming according to the existing ideas of dancing and music. Hence the Vāstuśāstra declares the close connection of it with the sciences of citra, dance and music (Vish. Dharm.,

Ch. II). Thus according to the Vish. Dharm. (Ch. II), "He who does not know properly rules of citra cannot discern characteristics of images. Without a knowledge of the art of dancing, rules of painting are very difficult to be understood and dancing cannot be understood without a knowledge of music". The same book (Ch. XXXV) says, "In dancing, as well as in Citra, imitation of the three worlds is enjoined by tradition. The eyes and their expressions, limbs and hands have to be treated as in dance". Hence it is clear why the Vāstuśāstras were related to and often included the Citraśāstra as well as the science of dance and music.

As in discussing the architectural texts of the Vāstuvidyā, we have first discussed the origin of Indian architecture and then of its science, so should the origin of the science of sculpture and painting be traced as we know from the Indian texts. From the historical point of view, sculpture and painting are as old as the dawn of civilisation in India. The so-called Indus Valley remains have revealed innumerable sculptures in terracotta, stone and bronze, and paintings have been found on earthen vessels. Several paintings and drawings of the Neolithic Culture have also been discovered, though their age has not yet been definitely ascertained. After a big gap in time, we get systematic history of Indian art from the time of Asoka. But literary references indicate that both sculpture and painting of various materials had attained an advanced stage before the time of the Mauryas. The early Buddhist texts and the Jātaka stories may take us back to the time of king Bimbisara of Magadha. These references have already been discussed by many authors on the subject and need not be repeated again. Painting was regarded as a work of art (Kalā) in the Arthaśāstra (II.27).

Whether images of gods were worshipped in the early Vedic period is still a matter of controversy among scholars. But the remains of the Indus Valley, if they are pre-Vedic, clearly indicate the existence of image worship in India before the Vedic period. Hence we have to conclude that

image worship must have existed in the Vedic period, among the lower stratum of society, even if not among the followers of the Vedas (J. N. Banerjee: Elements of Hindu Iconography). Knowledge of different kinds of colours also appears to have already developed in that age. In the Sūtra Period, we find definite references to icons and temples. The Jataka stories [as in No. 541—statues of Indra (Sakka)] and the Arthaśāstra have clear reference to images of gods Dr. H. C. Roy Chaudhury pointed out the reference to an image of Herakles (Hari-Krishṇa or Śiva) being carried in front of the army of Porus. The grammar of Pāṇini also contains references to images.

Whatever may be the time of the beginning of sculpture, painting and the art of image-making in India, we are not so much concerned with it as with that of the beginning of the sciences dealing with them (viz. the Citravidyā). The origin of Vāstuvidyā has already been traced by me from the time of the Gṛhya Sūtras and the dates of the available texts on Vāstuvidyā have also been discussed. We shall have to find out the date of the beginning of the texts on sculpture and painting (i.e. the Citraśāstra in its widest sense) and also trace its development in the later periods.

§2. Origin of Sculptural Texts

It is undoubtedly very difficult to ascertain the origin of the Citrasūtras in its widest sense. But an attempt may be made about it from various points of view. Texts on iconography appear to have originated in a very early period. Though anthropomorphic descriptions of gods are found in the early Vedas, no definite form was perhaps yet attributed to the particular gods. The iconographic texts must have originated after the custom of image-worship had come definitely in vogue in India i.e. in the later Vedic period. J. N. Banerjee (Elements of Hindu Iconography, p. 575ff.) has shown that the Śatarudriya section of the Maitrāyani Saṃhitā while referring to the names of several gods and goddesses also describes the iconographic features

of some of them. Thus the names 'Karaṭa-Hastimukha' of Ganeśa and 'Chaturmukha-Padmāsana' of Brahmā indicate the iconography of those deities. Similarly, the Taittiriya Āraṇyaka refers to the traits of some of the gods such as —Vakratuṇḍa-danti (i.e. Ganeśa), Mahāsena Saṇmukha (Kārtikeya), Suvarṇapaksha Garuḍa, Vajranakha-Tikshṇa-daṃshtra-Narasiṃha. The Mahānārāyaṇa Upanishad (IV. 1-18) further elaborates the iconography of some these gods, which were, according to Banerjee, mostly folk-gods absorbed in the Vedic society. The iconographic traits of the folk-gods such as Yakshas arose before those of the higher cult gods and goddesses. The origin of these iconographic characteristics may thus be traced to the pre-Buddhistic period. A Jataka story (No. 118, Vattaka-Jataka introduction) refers to a boy "as lovely as Brahmā" which may indicate the beauty of the image of Brahmā of that period. The Siri-Kālakanni Jataka (No. 382) describes a goddess Kālakanni as wearing blue dress, ointments, and jewels and as being as dark in colour. She is addressed by the Bodhisattva of the story as 'Kāli'. She was 'misfortune and likes all bad man'—and was thus opposed to Siri (or Lakshmi-good luck) of the story. Kālakarṇī is known as Alakshmī in later literature. This story may thus be regarded as containing the iconographic features of a prototype of the goddess Kāli in her terrific form. The Gṛihyasūtras clearly refer to image-worship; and iconographic features of many gods had thus been quite likely fixed in that period. The Bodhāyana Gṛihyasūtra refers to Jyeshṭhā; the Āpastamba to Īśāna, Miḍhusi and Jayanta; the Pāraskra to Īśāna, Miḍhusi, Jayanta, Śrī, Dhanapati, Bhadrakālī and Kshetrapāla etc. It should be noted that many of these gods and goddesses became very popular in the post-Gṛihyasūtra periods and some of them became sectarian ones. Thus though the Gṛihyasūtras do not contain description of iconographic traits of these gods, their iconography might have arisen in that period.

It is therefore quite natural that the earliest iconographic canons are to be found in the Pariśiṣṭas (Appendix) of the

Gṛihyasūtras of which only one survives. The Āśvalāyana Gṛihyasūtra Pariśiṣṭa (Ch. I, Sec. VI and Ch. II, Sec. V) describes the iconography of many Vedic and Pauranic gods. Herein we find complete descriptions of Gāyatri (in her Brahmāṇi, Vaiṣnavī and Māheśvarī forms in different parts of the day respectively), Āditya, Soma, Angāraka (Maṅgala), Saumya (Budha), Bṛihaspati, Śukra, Śani, Rāhu and Ketu i.e. the Navagrahas and then the Adhidevatās and the Pratyadhidevatās of these planetary gods. The Adhidevatās were Agni, Āpa, Bhūmi, Viṣṇu, Indra, Indrāṇī, Prajāpati, Serpents and Brahmā respectively. The Pratyadhidevatās included Rudra, Umā, Skaṇḍa, Purusha (like Viṣṇu), Brahmā, Śakra, Yama, Kāla and Chitragupta. Besides these we also find the detailed descriptions of the forms of gods who were invoked for the safety of the sacrifices [such as Vināyaka (Ganeśa), Durgā, Kshetrapāla, Vāyu, Ākāśa, Aśvins] and the Lokapālas like Indra, Agni, Yama, Nirṛti, Varuṇa, Kuvera and Iśāna. Though the exact age of this Pariśista is not known, it may be placed in the latest part of the Sūtra period and may be regarded as the earliest known iconographic text of India (See Table XI).

As regards the texts on painting, they were perhaps well known in the period of the earliest Buddhist canonical literature. The Samyukta Nikāya refers to a method of preparation of colours and the Cullavagga refers to a kind of plaster on which colours were to be painted. In the Cullavagga, the Buddha is further said to have instructed his disciples on the rules of building and painting on their walls (See Ch. VII above). As the Vāstuvidyā was also mentioned in these Buddhistic canons, it is quite likely that Citravidyā was also included at that time in the Vāstuvidyā. Coomaraswamy has referred (Eastern Art, Part III, 1931) to a passage in the Buddhist work Aṭṭhasālini, in which several technical terms used in later works on painting are to be noticed. These terms are Lekha (drawing), Gahaṇa (priming), Rañjana (colouring), Ujjotana (adding high lights) and Vartanā (shading). These Buddhistic

references help us in tracing the existence of the canons of painting and architecture in a very early period (say, the 3rd century B.C., if not earlier). The Asokan pillars with their animal capitals and the so-called Bells reveal schematic delineation and a well-planned idea behind the execution of each of the figures. If these figures be regarded as imitations of Brahmāstambhas or Dharmastambhas (See author's 'Cult of Brahmā', Ch. V), it may be assumed that they were executed on the basis of traditions coming down from a much earlier age (the Upanishadic period). Texts on sculpture and painting may thus be considered to have arisen in India before the 3rd century B.C.

§3. Age of Available Texts

A few available texts of Hindu sculpture and painting may be placed in the Third or Fourth century A.D. But their authors clearly note down the existence of innumerable texts before them on which they had based their writings. Thus the Matsya Purāna list of eighteen teachers on Vāstuvidyā (Ch. X above) contains the names of several authors who are also known to have composed works on sculpture and painting. The Matsya Purāṇa text on Vāstuvidyā has already been shown to be belonging to the Third or Fourth century A.D. The chapters on iconography in that Purāṇa (Chs. 258-263) appear to be earlier than those in the Bṛihat Samhitā, as they do not contain the names and iconography of Balarāma, Buddha and Kalki in the list of the Avatāras which are found in Varāhamihira's work. The Matsya Purāṇa chapters, however, refer to the Tāla measurement of images which need not be regarded as pointing to a later age, as has been done by Banerjee (Elem. of H. Icon.) (See also discussion below). Of the teachers mentioned therein, Bhṛigu is known as the author of several Āgamas which contain Iconographic texts. Works of Atri, Vaśiṣṭha, Śukra, Viśvakarmā and Maya are also known to have contained texts on sculpture and painting. The Brahmayāmala Tantra contains a chapter

on Pratimālakshaṇa (P. C. Bagchi places the work in the Sixth century or earlier) related by Brahmā. To Nārada is ascribed a work called the Nāradaśilpa which contains 83 chapters dealing with architecture and paintings. Nagnajit's Citralakshaṇa and that of Prahlāda have already been discussed and must have existed before the Sixth century A.D. Discussions on the authenticity of these writers have already been made in an earlier chapter (Ch. X above). Many of the available works ascribed to these authors, however, appear to be later recensions of the original works.

If we believe the Nāṭyśāstra of Bharatamuni to have been composed in about the end of the Third century A.D. (J.B.O.R.S., 1923, Pt. I, pp. 60-62), we get ample materials to know the condition of Citravidyā in this period. The work cannot be later than the Sixth century A.D. Hence, along with the Matsya Purāna, this book supplies us information about Chitravidyā before the Sixth century, the date of Varāhamihira's Bṛihat Saṃhitā. The Nāṭyśāstra says (Ch. I, 114) that, "all the śilpas have been collected together in the Nāṭya", and śilpakāras are often mentioned in the book. It further says (Ch. 23 43) that "regarding decorations of the body, the Āgamas, and the measurements and description of forms as originated from Viśvakarmā should be properly understood and then applied". The Theatre house (Nāṭyaśālā) is said to have been built by Viśvakarman at the request of Brahmā. All these indicate the indebtedness of Bharata to the śilpa works of Viśvakarmā and Brahmā who are known as preceptors of the Vāstuvidyā The work is acquainted not only with many of the technical architectural terms as found in the Vāstuśāstras (such as ūha, pratyūha, sañjavana, aṭṭāla, bhañjikā, niryūha, kūhara, kapotāli, nāgadanta, utsedha etc.) but also with many subject matters dealt with in the texts on sculpture and painting. Bharata enjoins paintings to be made on the walls of the theatre (Ch. 2. 83ff) and shows his acquaintance with various colours and their variations in strength (Ch. 23. 74ff). The symbolism of colours as

used in later Citraśāstras was also known to him when he says that by colour and dress, a living being may transform his character; and supernatural beings or inanimate objects (such as hill, sea, vehicles, implements etc.) may be shown acting as living being or as men. The relations of various Rasas with different colours are also described (Ch. 6.42ff). Every colour had a presiding god, which shows that the colour of the gods as noted in the texts of iconography was known to Bharata. According to him, gods should generally be of white colour; but Rudra should have the colour of fire; Buddha, Brahmā (Ch. 6. 43 and Ch. 43) and the Fire-god should be yellow and Nara and Nārāyaṇa should have the śyāma colour (Ch. 23. 80ff). In chapter 42 (Verse 43ff) the image of Brahmā is said to be of yellow colour and creating Adbhuta Rasa in the mind of the spectators. These injunctions must have been taken by Bharata from the Āgamas and śilpa-texts of Viśvakarmā. In describing the gait (Gati of various forms, Ch. 13. 151ff) of lions, bears and other animals, the Nāṭyaśāstra compares that of a lion with the gait of Vishṇu's Narasimha form in the Ālīḍha pose, with one hand on the thigh and the other on the chest of the Asura as found in many of the texts on iconography. Rules regarding dress and ornaments of gods are also similar to those found in the Śilpaśāstras. The one hundred and eight kinds of dancing mentioned in the work is said to have arisen from the dance of Śiva. The various hand-poses and the rules of 'dṛiṣṭis' (looks) as found in the Nāṭyaśāstra are similar to those found in the śilpa texts. Various poses of the gods are described as found in the texts on image-making. The Tāla and angula measurements, as commonly used in the iconometrical texts were also well known to Bharata (Ch. 13. 9, 23. 156). The Nāṭyaśāstra also indicates its knowledge of the Kalkas (of Vilva fruit etc.) which were used in the construction of various structures, images and paintings, and found described in the Śilpaśāstras. In these matters, the Nāṭyaśāstra, as it itself acknowledges, must have been thus indebted to the

Śilpaśāstras i.e. rules of image-making and painting as found in the Āgama works or of Viśvakarmā.

Sculptures known as Pustas (like dolls) mentioned in the Śilpaśāstras are also noted in the Nāṭyaśāstra. The Nepathya (back side of the stage) is enjoined to be decorated with Pustas or figures made of kiliñja (a kind of mat), cloth or skin (cf. Vish. Dharm., Ch. 27. 3). Such figures (Pustas) of earth, wood or skin were also to be employed in presenting multihanded, multifaced or uglyfaced beings and animals on the stage (Ch. 23. 6ff). It is interesting to learn that the Nāṭyaśāstra (Ch. 23. 106ff) enjoins that divine beings (Divya Purushāḥ), kings and princes should be shown on the stage as bearded. Though no available early śilpa texts (except the Agni Purāṇa) describe Brahmā as bearded, bearded image of Brahmā of the 3rd or 4th century A.D. are found in the Mathura Museum. Such bearded Brahmā figures may thus have originated from the śilpa texts which were available to Bharata and now lost to us. The Nāṭyaśāstra thus may prove the existence of technical literature on sculpture and painting before its time (i.e. before the 3rd or 6th century A.D.).

A definite age of the Citraśāstra is learnt when we reach the time of the Bṛihat Saṃhitā i.e. the sixth cent. A.D. But Varāhamihira has clearly noted in his book that he had written the chapters on Vāstuvidyā on the basis of earlier writers—some of whom he mentions in the book. In the chapter on image-making, Varāhamihira mentions the names of Nagnajit and Vaśiṣṭha and also a Drāviḍa school of Citraśāstra. All these therefore prove that Vāstuvidyā including Citraśāstra existed in India before the sixth century and several writers had perhaps flourished even before the Third century A.D. As discussed before (Ch. X) names of these earliest writers may be known to us from various sources.

Many of the existing texts on Citravidyā are ascribed to the authors mentioned in the aforesaid works, but their real age is difficult to be ascertained. Hence a discussion is necessary to find out their probable time. These texts

may first be classified under following heads—I. Purāṇas and Upapurāṇas such as Matsya. P., Agni. P., Bhavishya P., Devī P., Vishṇudharmmottaram etc. II. Works of Pratishṭhā class of Pañcharātra school. Hayaśīrṣa Pañcharātram of several Kāṇḍas (Saura, Vāsudeva and Saṃkarṣaṇa Kāṇḍas well-known). III. Śaiva Āgamas of North India. IV. Śaiva Āgamas of South India. V. Tāntric works of North India. VI. Tāntric works of South India. VII. Compilations of North India. VIII. Vāstu-works of South India. IX. Compilations of South India.

The age of many of these texts cannot be definitely ascertained from the mere fact that the injunctions found in a particular text are found followed in the images of a certain period. Early regulations are often found applied in images of later periods; and apparently late ones are also found applicable to early images The rules of iconography must have arisen from the Dhyānamantras of the Purānas, Āgamas and Tantras. The Pañcharātra Vaisṇava system of worship, as Banerjee has shown, gave a great impetus to image worship and hence to the iconoplastic art of India. The date of the Śilpa-texts in the Purānas and Upapurānas need not be discussed here. But as already stated, the Matsya Purāṇa text on Vāstuśāstra appears to me to be the earliest of them. The Agni Purāna chapters on Vāstuvidyā were obviously taken from the Vāsudeva or Samkarṣana Kānḍa of the Hayaśirsa Pañcharātra. The Saṁkarṣana Kānḍa is said to have existed in the 11th century, and a Mss. of this was in possession of King Ballalasena of Bengal, as attested to by Raghunandana in his Maṭha Pratiṣṭhātattva (H. Mitra, 'Contribution to Bibliography on Indian Art etc.', p. 237). The Vāsudeva Kāṇḍa has been amply quoted by Gopāla Bhaṭṭa in his Haribhaktivilāsa. The Saura Kāṇḍa of this work is found in Ms. form and is more important for architecture than iconography. The Hayaśīrṣa Pañcharātra as a whole was therefore earlier than the Agni Purāṇa, but perhaps later than the Bṛihat Saṃhitā, as a comparison of architectural matters in the two books indicates. The Vishṇudharmmottaram

is ascribed by S. Kramrisch to the 6th/7th century; but the architectural matters in the book indicate a slightly later date (8th or 9th century A.D.) (See also Ch. XIII). Both the works, however, are said to have been related by the sage Mārkandéya and the Saura Kāṇda of Haya. Pañch. is also related in the text to be denominated as the 'Mārkanḍéya Tantra'. Both the Vishnudharam. and the Haya. Pañch. thus appear to be almost contemporary.

The age of the Āgama texts has already been discussed before. It may be mentioned here that some of the Āgamas, especially of North India existed in the 6th/7th centuries, if not earlier. The Nāṭyaśāstra refers to the Āgamas. Bhaṭṭotpala, (9/10th century A.D) in his commentary on the Brihat Saṃhitā quotes a few of them. The Kiraṇa Tantra, often quoted by him is a very early work as shown before (Ch. XIII, above), and its architectural texts indicate that it was a work of the Northern School. Of the South Indian Āgamas and Pañcharātra texts, we find again two classes, set apart by ages. The Sūprabheda Āgama, the Kāmikāgama and Vaikhānasa Āgama of Marici appear to be earlier than the Vaikhānasa Āgama of Atri and that of Kāśyapa (Vaikhānasiya Kāśyapa Jñānakānḍa). These latter works do not appear to be earlier than the 9th century.

Many of the Śākta Tāntric works may be placed in the sixth or seventh century A D., if not in earlier periods. The Kubjikā Tantra (Ms. available of 7th century), the Brahmayāmala and the Piṅgalāmatam appear to be works of this class and give us important texts on the Pratimālakshana. The Piṅgalāmatam is found quoted in the Ī-Ś-G-D-Paddhati (Ch 37) of the 11th. century. The Brahmayāmala refers to the placing and worshipping of the images of Gaṅgā and Yamunā on temple doors. It has been already shown (Ch. XXIV) that this custom of the worship of Gangā and Jamunā on the door cannot be explained without reference to these Tantras. As these figures formed a special feature of the Gupta temples, it is quite likely that these Tāntric works belonged to the Gupta period. Banerjee

in his new Bengali work (Pañchopāsanā) has definitely proved the existence of the Tāntric religion in the Fifth century A.D. (time of Kumāra Gupta), and it is quite likely that many of the Tāntric texts had arisen in that period or even earlier. In this connection it will be of interest to note that the earliest reference to one of the Mātṛikās has been traced by me in the Arthaśāstra of Kauṭilya (14.3.178) in which a mantra refers to "Suvarṇapuṣpīṃ Brahmāṇīm Brahmānaṃ Ca Kuśadhvajam". If the worship of Brahmāṇī refers to that of the first of the Mātṛikās, it is not improbable that many of the Tāntric texts which are now generally believed to be late works were really of a very early period. The worship of Bhadrakālī prescribed in the Manu Saṃhitā (Ch. III. 89) may also point to that fact; and in fact, Bhadrakālī is mentioned even in the Gṛihya Sūtras. The iconography of the Tāntric goddesses thus might have originated in the pre-christian era. The above mentioned verse in the Arthaśāstra also indicate the rise of iconographic features of Brahmā as "having kuśa grass as his banner", and of Brahmāṇī as "having the colour of a golden flower". The Arthaśāstra further refers to a goddess 'Śrī-Madirā' which may be same as the goddess 'Surādévī' of several South Indian Śilpa texts (and also in the 'Āryā Stava' of the Harivaṃśa).

Of the compilations of Vāstu-texts made in North India, the most remarkable is that of Bhoja, the Samarāṅgaṇa Sūtradhāra of the 11th century. This work appears to be based, regarding matters on citra, on the Vishṇudharmottaram, or some other common text, as will be evident from later discussions. Another such compilation of Vāstuśāstra was the Aparājitapracchā of Bhuvanadéva which may be a work of the 11th or 12th century (being quoted by Hemādri). The Haribhaktivilāsa of Gopālabhaṭṭa which quotes many earlier works was compiled in the Fifteenth century. Of the same age are the works of Maṇḍana Sūtradhāra—the Devatāmūrtiprakaraṇam and the Rūpamaṇḍanam.

The Dipta Tantra was a Tāntric text of the Southern

School. The Ī-Ś-G-D-Paddhati of this school is an important work for our study of Iconography and Sculpture, and was compiled in the 11th century. It quotes innumerable earlier works. Of them, the Mayamatam is available to us in print. Another important work quoted is that of Parāśara. The available South Indian works of Viśvakarmā, Kāśyapa, Atri etc. do not appear to be earlier than the 9th/10th century. Banerjee appears to be correct in placing the Vaikhānasa Āgama after the Hayaśīrṣa P. Rātram. Vaikhānasa Āgama of Marici is later than that of Bhṛigu (See Ch. X above). One Bhṛigu is the narrator of Hayaśīrsa. From that point also the Vaikhānasa Āgamas may be later than the Hayaśīrsa. An Important compilation of Śilpaśāstra is the Abhilasitārthacintāmaṇi or Mānasollāsa of King Someśvara of the Deccan of the 12th century. Hemādri's Chaturvargacintāmani was also compiled in the 13th century. The famous work 'Śilparatnam' was composed in the 16th century. The 'Mānasāra' and the 'Kāśvapaśilpa' appear to be the latest recensions of earlier works of the South. The Śukranītisāra, the date of which cannot be ascertained, is believed by me to be a work of South India. The newly discovered Nārada Śilpa is also a South Indian version.

§4. North and South Indian Schools of Śilpaśāstra

The main division of Vāstuvidyā into the Northern School and the Southern School is also noticed in the texts on iconography and Citraśāstra. This division had arisen before the time of Varāhamihira. Nagnajit is thus definitely found referring to the Drāviḍa Śilpaśāstra, as the quotation in Bhaṭṭotpala's commentary as well as the text of the Brihat Saṃhitā indicates (Bṛihat Sam., Ch. 50, Verse 4). Whether Nagnajit himself was a Dravidian writer has been discussed before. J. N. Banerjee (Elem. of H. Iconography, p. 29) has shown that there are substantial disagreement between some of the images of Nothern India with those of

the South. Images of Vishṇu and Sūrya and dancing Śiva images of North and South India differ in many respects. So do the texts on these images differ from each other. The difference in these two schools is also apparent from the comparison of the subject matters and the method of their treatment in the texts. While the Vishṇudharm., definitely belonging to the Northern school, ascribes the origin of the Citrasūtra to Nārāyaṇa through Rishi Mārkaṇḍéya, the Citralakṣaṇa of Nagnajit traces it from Brahmā, through Viśvakarmā and king Bhayājit (perhaps same as Nagnajit). Thus there is no doubt that different schools of Vāstuvidyā and Citraśāstra had arisen in India even before the Sixth century A.D. But it must be remembered that the difference between the two schools of Citravidyā was not so great as that between the architectural canons of the two. There was undoubtedly influence of the one school over the other in later periods, as in the case of the Karaṇāgama and the Rūpamaṇḍanam, as noticed by Banerjee. It has been shown by me how the Āgama texts on Vāstuvidyā (Kāmikāgama, Sūprabheda etc.) were influenced to a certain extent by the North Indian ones (See 'Classification of Temples').

Some points of difference between the two schools as regards the subject matter and the method of treatment may be discussed here.

1. The early South Indian texts—some of the Āgamas, the Mayamatam and the Ī-Ś-G-D-Paddhati are more Saivite in character. They first discuss the Śiva-Linga, then the Pīṭha and then a set of 16 or 18 different forms of Śiva. Even the Kāśyapaśilpa which is almost purely a non-religious work does the same. The Vaiṣṇava Āgamas or the Pañcharatra texts of the South deal with the images of Vishṇu and his four Vyūhas. Schrader had also divided the Pañcharātra texts into North Indian and South Indian.

2. Many of the Śaiva images described in the South Indian texts were made on the basis of several stories or legends of that God. They were the Anugraha and the

Saṃhāramūrtis. Very few of such images are described in the Northern texts.

3. The 'Parivāradevatās' forms a special chapter in almost all the Southern texts, and is hardly found in those of N. India.

4. Division of images into--Dhruva, Kautuka, Snapana, Utsava, Bali, etc.—so common in the S. texts is absent in the Northern ones. The word 'Bera' is not found in the Śilpaśāstras of North India.

5. Divisions of icons into Śayana, Āsana and Sthānaka, and into Yoga, Bhoga and Vīra etc. are not generally found treated in details in the Nothern texts, except that slight references to such may be noticed here and there. The Visnudharm. thus refers to Bhogaśaya images. The Northern texts on the other hand deal in detail with the various nine positions (Ṛjvāgata, Sāchikrita etc —see below) of the images, while the Southern ones refer more to the Bhaṅgas, and of course incidentally refer to the others.

6. Śiva-Liṅgas and Pīṭhas, like temples, are divided in the texts of S. India into Drāvida, Nāgara and Vesara, which is not found in the Northern ones. My remarks on such divisions of Dravidian temples are also applicable to the Citraśāstra of South India (See Ch. XIV).

7. Measurement of Images according to 'Tālas' is, of course, known to both the schools. But the S. Indian texts took this method to its extreme by dividing each Tāla measure into its subdivisions Uttama, Madhyama, Adhama etc. This is in consonance with the South Indian system of dividing the temples into various classes on the basis of their storeys (Bhūmi or Tala), which is not found in N. Indian Vāstuvidyā

8. The division of Citra into Satya, Vaiṇika, Nāgara and Miśra is not known to any of the Southern texts (See Ch. XX). It should be noted, however, that these points of difference are found in the original works and not in compilations like the Samarāṅgaṇa, Aparājitapracchā and the Rūpamaṇḍanam. I cannot agree with Dr. Shukla's

statement that the "Aparājita's leaning towards the Dravidian school is its special characteristic" ('Vāstuśāstra', Vol. II), as the architectural as well as iconographic sections in it are influenced equally by the Northern texts. As noted before, the Aparājitapracchā was perhaps a work of the Lāṭa school, but dealing with all the existing matters of Śipaśāstra of various schools. In spite of many points of difference between the N. Indian Śilpaśāstras and those of S. India, we also notice innumerable points of agreement between them which form the essence of Indian art. They will be discussed in the proper place.

§5. Traditions of Origin of Citravidyā

Two traditions are available about the origin of painting in India. According to the Citralakshaṇa of Nagnajit, a Brahmin's son havng prematurely died during the reign of king Bhayājit, the Brahmin complained to the king and asked him to restore his son to life. Presently Yama appeared and he was asked by the king to give back life to the boy. As Yama expressed his inability, a fight ensued between the King and Yama. Brahmā, in order to appease the two, asked the king to draw an exact picture of the boy with colours. Brahmā then gave life to the picture. The king wanted to know from Brahmā the right method and measurements required for painting. In answer Brahmā said that it was necessary before Vedic sacrifices to draw a picture of the altar (chaitya) and as Brahmā first drew the picture of man in colours, such a drawing should be called citra (a pun on the word 'cit', both in 'Chaitya' and 'Citra'—compare the passage in the Aṭṭhasālini mentioned by Coomaraswamy). Brahmā further said that Citrakarma was the best of the Kalās, and Nagnajit should go to Viśvakarmā to know the lakshaṇa (characteristics), Vidhis (rules) and Mānas (measurements) of citra. Nagnajit did it and learnt the decorations and beauty of the pictures of men, sages, nāgas, asuras and so on.

The second tradition is found in the Vishṇudharmottaram

(Part I, Ch. 129 and Part III, Ch. 35). It is said that when Nara and Nārāyaṇa were engaged in meditation, several Apsarās wanted to divert their minds. On this Nārāyaṇa drew the picture of a beautiful damsel with the juice of the mango tree. The Apsarās, on finding the beauty of that picture surpassing theirs, fled away from that place. From this picture arose Ūrvaśī, the most beautiful of heavenly women. The great sage Nārāyaṇa thus created the art of citra and taught it to Viśvakarmā.

Both these traditions thus ultimately attribute the origin of citra to Viśvakarman and to portrait painting. The first legend ascribes some religious motive to the origin of painting—in as much as the first paintings are said to have been those of the sacrificial altars The measurements of architectural constructions have already been shown to have arisen from the rules of the Śulva Sūtras. After these drawings used in sacrifices, arose portrait paintings. Other characteristics of painting are also well shown in these two legends. Tree juices were at first used, as well as colours. The pictures were to be life-like, and must conform to certain measurements in order to maintain due proportions. The rules or technique and the characteristics of painting are also mentioned. Both the legends refer to the motives or end of painting. A good painting drives away sorrow and other evils like passion.

This about Citravidyā or art of painting. How did sculpture—mainly, images of gods—arise is also related in the Vishṇudharmmottaram (Ch. 1 and Ch. 46, Part III). In the Satya, Tretā and Dvāpara Yugas people could see the gods with their eyes, but in Kali Yuga, they lost that power. Hence to help them in the worship and meditation of the Supreme Being who is formless, images were made as intermediaries. Images made according to prescribed rules thus bring the gods close (sānnidhyam) to men. Another tradition of the origin of idols is mentioned by Alberuni (His "India", Part I, 114ff). According to him Vishṇu once appeared before king Ambarīsha and instructed him to make an image of him saying, "If you are overpowered

with human forgetfulness, make to yourself an image like that in which you see me". Another story is related by him about Nārada who saw the Lord like a fiery appearance in something like human shape. These traditions recorded by Alberuni refer to the origin of images of Vishṇu. The tradition about Nārada may refer to the Pañcharātra school (of Nārada) which undoubtedly gave a great impetus to the development of image worship in India. The psychology of image worship and the origin of icons are thus explained by Indian traditions.

§6. Was Indian Art Wholly Religious?

All these traditions undoubtedly refer to the rise of the art of painting and sculputre in relation to religion. Drawing arose from the necessity of altar-construction; figure sculptures assumed the form of images of gods. But at the same time, the traditions also indicate that the first artists had other motives too in executing those paintings (To remove the sorrow of the bereaved; to put beauties to shame etc.). Hence we find that Indian art has not "always been a purely religious one" as held formerly by scholars. We know from the Śilpaśāstras that pictures were made to embellish homes and palaces (Vish. Dharm., III. 43). The texts further say that by citra, men "may have happiness in both the worlds". The purpose of citra was to gain Dharma, Artha, Kāma and Moksha.

That Indian art was not purely religious in nature is also apparent from the subjects depicted in various ages. It is true that very few portraits or portrait figures, or big secular sculptures have been found in India. Later texts like the Śukranīti lays down that, "It is of benefit for men to have the image of a god (Devavimba) even if it is not made with proper marks (Lakshaṇa); but a secular image (Martya Vimba) with all characteristics is not beneficial" (Ch. 4, Sec. 4, Verse 76). This attitude towards secular art was undoubtedly a later growth in India and may be regarded as one of the reasons of the decay of Indian art. This attitude to secu-

lar things is reflected also in architecture when domestic buildings were prohibited to be built in stone (See Ch. XXVIII). Hence it is that very few specimens of ancient secular art have survived to our times. But Indians were not always averse to non-religious art. Literature refers to citraśālās (picture or art galleries) being an important feature of big cities. Kings had to maintain such citraśālās. A text on the construction of such galleries is found in the Nārada Śilpaśāstra (J.I.S.O. Art, June 1935, pp. 15ff). Historical survey also shows how Indian artists produced mundane objects of artistic beauty. The terracotta figures discovered at Mohenjodaro and other places represent animals and birds, and toy carts. The pottery paintings consist of birds, fishes, creepers and geometric designs. Statues of men and women made of gold or iron are mentioned in the epics, the Jatakas and later literature Many of these women figures were made to represent a woman lost or a prospective bride Sex impulse, therefore, often appears to have guided the Indian artists of a very early period. The Buddha had prohibited his disciples from having imaginative drawings and drawings of men and women (Cullavagga VI. 3). He is also said to have objected to representation of figures, as one of his disciples after having dyed a yellow garment, made various objectionable representations in it of male and female figures in the act of dalliance (Kramrisch, Vishnudhar., l.n. p. 20). These references clearly show that female figures and couples (Mithunas) had been a favourite motive of ancient Indian artists. Paintings of men and women were done on wooden boards, walls and cloth as mentioned in Buddhist literature. The sensual character of many of the Mathura female figures is well known. Sex-appealing representations later on assumed an extreme form in the figures of the Mithunas on the walls of temples (See Ch. XXIII). Indians, in fact, looked deeply into nature to procure motifs for their art-creations.

Texts on Vāstuvidyā and Citravidyā also reveal, that though they are now generally found in the religious books like the Āgamas, Purāṇas and Tantras, originally they

were not solely used to the creation of religious art. The door jambs of temples were to be decorated with figures of birds, trees, vases, human and animal couples, creepers, foliages, lotuses and goblins of various forms. The compound walls of temples and Maṇḍapas were adorned by citra (figures or paintings) of lions, tigers, bhūtas (demons), swans, dramatic scenes, various ornaments and lolajanas (men with passionate looks). The Toranas (archways) had to be sculptured over or painted with various pictures, or figures of ornaments, Bhūtas, Vidyādharas, children, garlands, men and women. The texts on the mithunas have already been cited. The subjects of painting (citra—including sculpture) as enumerated in the Vishṇudharm. and the Samr. Sūtra. are too numerous to be fully enumerated here Figures of women, widows and prostitutes, dwarfs, generals, foot-soldiers, archers and wrestlers are some of the motives prescribed. Besides these, were the natural objects like mountains, sea, forest, water, city and villages, markets, drinking places, battlefields, burning ground, roads, dawn and night, moon shinning and rain falling and so on. Some of these objects were, however, prohibited from being exhibited on residential houses. The Samar. Sūtra. adds several others to this list of subjects which could be depicted in painting (or sculpture). Besides these, we find that pustas or dolls formed a principal feature of Indian art. It is sufficient from this short survey to show that Indian art was not a purely religious one Even the Buddhist artists produced many non-religious ideas in stone and colour.

Origin of sculpture and painting has thus been discussed from various points of view. Indian architecture, as has been shown had its origin from wooden models. It is also quite likely that stone sculpture in India had been preceded by wooden sculptures. Dr. Banerjee has discussed this matter in detail. But clay figures have been so numerously found in India and they are of such antique period, that it is difficult to say whether wood or earth was first used in evolving sculptural objects. Dr. Banerjee refers to several extant wooden images. That such images

were made in the medieval period is also known to us from the account of Al-Beruni (India, Part I, p. 116). He refers to the image of the Sungod at Multan being made of wood and covered with red cordova leather, and also to the idol of Śāradā in Kashmir having been made of wood. Carvings on wood was a field in which Indians excelled from a very ancient period.

§7. Contents of the Citravidyā Texts

An idea about the scope and subject matter of the Citraśāstras may be formed from the comparative study of the available texts, a summary of which is given in the following pages. It will be seen that common traditions regarding sculpture and painting were recorded in all the texts, though there might be slight deviations in matter and method of treatment among a few of them. Besides iconography, the Āśvalāyana Gṛhya Sūtra Pariśiṣṭa also deals with the various materials of images and results of defects in the images (As. Gr. Par., IV. 3).

I. Matsya Purāṇa

The chapters on image-making are preceded and followed by those on architecture. Hence it may be concluded that the former and the latter comprise the whole Vāstuvidyā copied by the author from earlier texts The age of the texts on iconography may therefore be the same as those on architecture.

Chapter 257—Collection of wood.

Chapter 258—Necessity of installation of icons—images of Vishṇu—Déva, Dānava and Kinnaras in Navatāla measure—standard units of measurement—materials for image-making—measurements of limbs of images.

[The last verse in the Bengali edition appears to be corrupt and should be "Navatālamidam proktam lakṣaṇam pāpanāśanam" as quoted in the Haribhaktivilāsa (18th vilāsa)]

Chapter 259—Daśatāla images of Rāma, Vāli, Vairocana, Varāha and Narasiṃha—Saptatāla image of Vāmana-Rudra

images—dancing figures—Tripuradāha—prohibitions of defects and results thereof.

Chapter 260—Images of Ardhanārīśvara—Umā-Maheśvara—Śiva-Narāyaṇa—of Mahāvarāha—Narasiṃha—Trivikrama,—of Brahmā—Kārtikeya—Vināyaka, Kātyāyanī and Indra.

Chapter 261—Images of Sūrya—Agni—Yama—Nairita —Varuṇa—Vāyu—Kuvera and Īśana—of the Mātṛikās (eight or nine)—Śrī—Madana.

Chapter 262—The Pedestal (Pīṭha) under Liṅgas and other gods—10 varieties and materials.

Chapter 263—Characteristics of Liṅgas—9 kinds—names Brahmabhāga, Vishṇubhāga and Maheśvarabhāga of the lower, middle and upper parts respectively.

II. Agnipurāṇa

The iconographic texts appear in this Purāṇa to have been inserted into it in different ages and by people of different sects. The śilpa texts appear to have begun systematically from ch. 38 and continued to ch. 56. These chapters were perhaps taken from the Vāsudeva Kāṇḍa of the Hayaśīrṣa Pañcharātram. The matters herein may be compared with the quotations from Haya. Pañch. as found in the Haribhaktivilāsa. Related matters as found scattered all over the Purāṇa are also noted below.

Chapter 38—Effects of installation of images and temples.

Chapter 39—Names of the Pañcharātra and Saptarātra Tantras—position of temples of respective gods in cities—standard units of measurement.

Chapter 40-42—Architecture.

Chapter 43—Position of respective gods on respective sides of temples—materials for image-making—ceremonies.

Chapter 44—Measurement of images according to Navatāla measure—Vishṇu images.

Chapter 45—Pedestal of images (Piṇḍikā)—images of Lakshmī in aṣṭatāla measure—other goddesses.

Chapter 46-47—Śālagrāma Śilā.

Chapter 48—Twenty four forms of Vishṇu image.

Chapter 49—Ten Avatāras—Nine Vyūhas—other forms of Viṣṇu:—Trailokyamohana—Viśvarūpa Jalaśāyin—Hari-śaṃkara—Hayagrīva—Dattātreya—Viṣvakasena.

Chapter 50—Images of Chaṇḍī—Lakshmī—Gaurī—8 Mātṛikās including Rudracharcikā or Naṭeśvarī—Ganeśa—Kārtikeya—attendants of Devī and Śiva—Ghanṭākarṇa.

Chapter 51—Navagrahas—Nāga—Indra and other Dik-pālas—Viśvakarmā—Kinnaras etc.

Chapter 52—The sixty four Yoginīs.

Chapter 53-56—Liṅgas and Pīṭhas—Mukhaliṅgas—Prabhāmaṇḍala.

[A very important statement in this chapter is "Prati-mātmā tu purushaḥ Prakṛitiḥ piṇḍikā Lakshmī pratiṣṭhā Yogakastayoh"]

Various other cognate matters found in the Agni Purāna are noted here summarily.

In ch. 59 it is said 'Haréh sānnidhya-karanamadhi-vāsanamucyaté'. This shows the importance of the 'adhi-vāsana' ceremony which fulfills the real purpose of an image viz. to bring god nearer to men.

Three forms of Sandhyā is related in ch. 72.

A five-faced and ten-handed Śiva image seated on Siṃhā-sana is described in ch 74. A god named Chanda, born of Rudra and Agni is described in ch. 76.

In ch. 97 is found the rules of worship of Lepya and Citra images

Chapter 120—Rathas of Sun and other Grahas

Chapter 144—Goddess Kubjikā of six faces, of six or twelve hands.

From chapter 307 onwards we get again iconographic texts and those of use in sculpture and painting.

Chapter 307—Trailokyamohana image.

Chapter 308-10—Jayadurgā—Tvaritā.

Chapter 319—Vāgīśwarī.

Chapter 320—Maṇḍalas.

Chapter 326—Tārā images—of 2, 4 or 18 hands.

Chapter 339—Rasa and Bhāva.

Chapter 341—Aṅgakarma—movements and positions

of various limbs as in acting—13 kinds of Head-action—7 kinds of movement of brow—44 kinds of looks—position of hands (Mudrās) and other limbs.

The last two chapters mentioned above contain important matters which we also find described in the Vishnudhar. and Samar. Sūtradhāra and formed essential features of Indian art. The Agni Purāṇa, however, mention these in connection with Dramatic art.

The Agni Purāṇa chapters indicate that the traditions noted therein belonged to a school different from that of the Matsya Purāṇa texts and were later in age.

III. Brihat Saṃhitā of Varāhamihira (Cal. Edition)

Chapter 56—Architectural texts.

Chapter 57—Preparation of Vajralepa of three kinds and of Vajrasamghāta as related by Maya (but not found in printed works of Maya).

Chapter 58—Standard units of measurement—Measurements of limbs of images—ornaments and dress of the images.

Iconography of Rāma—Viṣṇu—Baladeva—Ekānamśā—Śāmba—Pradyumna—Brahmā—Indra—Kārtikeya—Śiva—Buddha—Sun—Liṅga—Mātrikās (7 in number)—Revanta—Yama—Varuṇa—Kuvera—Gaṇeśa.

[The couplet about Gaṇeśa is not found in many of the Mss. of the Bṛihat Saṃhitā and hence Kern took it to be an interpolation. But in this connection, Alberuni's 'India' supplies us with additional information Alberuni gives a complete translation of this chapter with slight changes in the order of the verses. After describing the image of the Sun (which is placed after Kuvera), the translation runs thus:—

"If you represent the Seven Mothers, represent several of them together in one figure, Brahmāṇī with four faces towards the four directions, Kaumārī with six faces, Vaiṣṇavī with four hands, Vārāhī with a hog's head on a human body, Indrāṇī with many eyes and a club in her hand, Bhagavatī sitting as people generally sit, Chāmuṇḍā ugly, with portruding teeth and a slim waist. Further join with

them, the sons of Mahādeva, Kshetrapāla with bristling hair, a sour face and an ugly figure, but Vināyaka with an elephant's head and a human body, with four hands, as we have hereto described". This translation of Alberuni shows that the Bṛihat Saṃhitā chapter on iconography contained not only a reference to Gaṇeśa (though not exactly as we find in the printed texts) but also some details about the Mātrikās and the god Kshetrapāla which we miss in the present-day editions. The variations in the readings of this chapter cannot be explained]

Chapter 59—Entry into forest for collection of proper wood.

Chapter 60—Rules of Pratishṭhā (consecration of images).

Another notable thing in the Bṛihat Saṃhitā is that 'Tāla' kind of measurements is not mentioned in it. This, however, need not mean that the Tāla measurement was unknown in the 6th century A.D. All we can infer is that it was not yet so popular in North India.

IV. Hayaśirṣa Pañcharātra (Saurakāṇda) (V.R.S., Ms.)

Chapter 20—Collection of Proper stones.

Chapter 21—General measurement and size of image in proportion to that of the temple—rules of Pedestal (Piṇḍikā) and Prabhā (Halo).

Chapter 22—Tāla measures (10 Tālas).

Chapter 23—Another kind of Daśatāla measure for Sūrya images—other Tālas for various other gods, upto 5 Tālas—9 positions of images (Ṛiju, Ardha-ṛiju etc.)—method of polishing images.

Chapter 24—Defects of images.

Chapter 25—Other defects to be avoided—qualities of good images.

Chapter 26—Iconography of two-handed image of Sun.

Chapter 27—Iconography of 9 Grahas—Rājñī, Nikshobhā, Manu—Yama—Aświns—Revanta—Mārtaṇḍa-bhairava (having six, twelve or eighteen hands)—rules for pedestal of Sūrya.

Chapter 28—Ceremonials—Kuṇḍas—Maṇḍalas—preparation of colours from powders of various things.

Chapter 32—As in the Agni Purāṇa, it is said "The image is Sūrya and the Pedestal is Rājñī, their connection (yoga) is the installation.

V. Hayaśirṣa Pañcharātra (Vāsudeva Kāṇḍa?)

Collected from quotations in Haribhaktivilāsa and the references are to the chapters of the Haribhaktivilāsa.

Vilāsa 5—Verses 168ff—images of Viṣnu—12 varieties—24 varieties.

Vilāsa 18—Meaning of Svāngula—image of Vāsudeva with Śrī and Puṣṭi—preparation of clay for image—śula—measurement of various limbs, according to Daśatāla measure—Images of Avatāras—Nṛimatsya, Nṛikūrma, Varāha, Nṛsimha, Vāmana—Paraśurāma—Rāma—Balarāma—Buddha—Kalki. Images of Vyūhas (Ādivāsudeva, Vāsudeva--Baladeva—Pradyumna—Aniruddha). Images of Brāhmā—Vishṇu—Narasımha—Varāha—Trailokyamohana

[Reference to the Pratishṭhāprasanga may be to the Hayaśīrṣa—which mentions Images of Vishnu having 4 or 8 hands—of Purushottama: Ekānaṃśā also called Bhadrā and Subhadrā—of 2 hands only]

Iconography of Viśvarūpa—Jalasāyi—Lakshmī (8 Tālas)—Śrī and Garuḍa.

Materials for images—eulogy of painted icons—As in the Agni Purāṇa, it contains the following verse:—

"Arcāmurtih Smṛita Kriṣṇaḥ Piṇḍikā Kamalālayā tayoryo vidhinā yogaḥ sā pratiṣthā prakīrtitā".

Vilāsa 19—Chala and achala images.

[As the 'Hayaśīrṣa Pañcharātra' is lost to us, quotations from it in other works are valuable for the study of iconography. A few such is mentioned here—

Raghunandana's Jalāśayotsargatattvam quotes the following:—

Varuṇa Image:—"Dvibhujaṃ haṃsapṛiṣṭhasthaṃ dakṣiṇénābhayapradam, Vāména nāgapāśantu dhārayantaṃ subhoginam, Salilaṃ vāmamābhogaṃ karayed-yādasāṃpatim, Vāmé tu kārāyed-vṛiddhiṃ dakṣiṇé Puṣkaraṃ śubham".

"Consecration of images to be made by Brāhmaṇas" (Verses quoted in 'Devapratiṣṭhātattvam').

"Purification of the image is to be made with five kinds of earth such as from ant-hills etc., cowdung, cowdung ashes", (Verses quoted in Deva. Pr. Tattva).

VI. Pratimā—Māna—Laksnam (Based on the Ātréyatilaka)

It has been already discussed (Ch X) that the Pratimā-mānalakṣaṇam is a Buddhist work based on an earlier one known as the Ātréyatilaka. This latter work appears to be a text of the Pañcharātra school and aversion of the 'Ātréya Tantra' mentioned in the Agni Purāna. The Ātréyatilaka is believed by me to be a North Indian work, as is evident from the style of writing.

1. Verses 3-5—Units of measurements and their synonyms.
2. 7-12—Shape of the head
3. 13-35—Measurements of various limbs
4. 36-52—Details of measurements.
5. 53-54—Marks on palms of gods.
6. 55-62—Measurements of other limbs
7. 63-70—Girths of limbs.
8. 71—Ornaments and garments of images.
9. 72-77—Merits and demerits of various sizes
10. 78-84—Other defects to be avoided.
11. 85-86—Navatāla and other Tāla measures.
12. 87-94—Devī images of Aṣtatāla measure.
13. 95-109—Figures of children, senāpati, vināyaka and Yakshas in six Tāla measure.
14. 110-116—Ten-tāla images of Brahmā, Carcikā, Rishis—Brahmarākṣasas—celestial kings and Buddhas
15. 117-122—Saptatāla measure.
16. 123-128—Dwarfs.

17. 129-30—Big images of 15 to 45 cubits.

18. 131—Method of disposal of broken images (Mention of Linga and Divine mother is remarkable).

VII. BRAHMA—YĀMALA TANTRA (Ch. IV)

[Collection from P. C. Bagchi's article]

1 Division of images into Divya, Divyādhika and Divyādivya.

2 Gods of Divyādhika class—of Divya class—of Divyādivya class.

3 Units of measurement (upto 11 Tālas).

4 Measurement of limbs of Divyādhika images—of gods—of Śakti goddesses—of Divya images—of Divyādivya images.

5. Iconography of gods—such as· Sadāśiva—Śrīkaṇṭha —Ardhanārīśvara—Umā Rudra—Guhyakas—Eight Mātrikās—Bhairavī and Bhairava.

PINGALĀMATAM (From Bagchi, J.I.S.O.A., 1943)

1. Trees fit for construction of images.

2 Clearing of the ground—auspicious and inauspicious signs.

3 Dvāramāna of three classes

4 Karamāna—units of measurement.

5. Dīrghamāna (measurement of height)—Tāla and its synonyms (upto 9 Tālas).

6. Measurement of the face of the image.

7. Sūtras (sections of the body—the plumblines).

8. Measurement of other limbs

9. Images of irregular proportions—position such as Sthānaka, Āsanastha and Supta-tiryak (recumbant in sleep).

10. Characteristics of female figures.

VIII. VIṢNUDHARMOTTARAM (Part III)

Chapter 2—Object of image worship and image-making —relation of Iconography with painting, dance and music.

Chapter 25—Rasadṛiṣṭis (looks expressive of Rasas).

Chapter 26—Position of hands (Mudrās).

Chapter 27—Preparation of colours.

Chapter 28-34—Dancing, Acting, Gaits, Rasas and Bhāvas—Mudrās in dancing—origin of Nṛityaśāstra.

Chapter 35—Origin of painting (See ante) by sage Nārāyaṇa who taught it to Viśvakarmā—common tradition regarding dancing and citra. Five types of men—measurement of height of each type. Tāla measure—Measurements of limbs of Hamsa type of men.

Chapter 36—Other measurements and characteristics of men.

Chapter 37—Five types of women—measurements of each type. Characteristics of images of kings (6 kinds of hair plaiting)—of women, lovers, sages, ancestors and gods etc.

Chapter 38—General characteristics of images of gods—their hands, eyes, face, ornaments, garments and halo-look—gait etc.

Chapter 39—Positions (sthānaka) of images—9 general—13 others according to Ksaya and Vṛiddhi—Positions of feet and leg according to actions indicated.

Chapter 40—Preparation of the ground for colouring—colours.

Chapter 41—Four kinds of painting (Satya, Vaiṇika, Nāgara and Miśra)—their characteristics.

Methods of Vartanā (light and shade).

Good and bad qualities of Citra—appreciation of Citra by different classes of people.

Chapter 42—Execution of the forms (rūpa)—how to depict things seen and unseen—various objects and their forms in painting.

Chief aim of painting (i.e to produce an exact likeness)—Madhyama, Adhama and Uttama paintings according to Vartanā.

Chapter 43—Nine Rasas—restrictions of their use—good and bad qualities of painting.

End of painting—"A proper painting brings on prosperity, removes adversity, cleanses and curbs anxiety, augments

future good, causes unequalled and pure delight, kills evils of bad dreams and pleases the household deity—Rules of painting should also be applied to carvings in iron, gold, silver, copper and other metals—and to images of iron, stone, wood or clay modelling—Ghana and Suṣira (hollow or massive) image.

Chapter 44—Beginning of iconography—Vishṇu in Rajas, Tamas, and Sattva forms.

Chapter 45—Figure of the Lotus.

Chapter 46—Significance or symbolism of images—Brahmā image and its symbolism.

Chapter 47—Vishnu image and its symbolism—4 Vyūhas.

Chapter 48—Śiva's image and its symbolism.

Chapter 49-53—Image of Śakra, Yama, Varuna, Kuvera, Garuḍa, Maruts.

Chapter 55—Ardhanārīśvara.

Chapter 56-59—Agni—Virūpākṣa—Vāyu—Bhairava.

Chapter 60-63—Brahmā, Viṣṇu and Earthgoddess—sky.

Chapter 64-66—Saraswatī—Ananta—Tumburu with Mother goddess.

Chapter 67-69—Sun, Moon and other planets.

Chapter 70—Manu—Revanta.

Chapter 71—Kumāra—Bhadrakālī—Vināyaka—Viśvakarmā.

Chapter 72-73—Vasus—Agastya—Bala—Pushkara—Maṇibhadra—Nandī—Kāma—Saraswatī—Varuṇa, Chāmuṇḍā, Śuṣkā, Bhīmā, Śivadūtī etc.—4 quarters—Kāla—Fever—Vedas—its branches.

Chapter 74—Liṅga image.

Chapter 75-77—Vyoma—Naranārāyaṇa—Dharma.

Chapter 78-80—Narasiṃha—Varāha—Hayagrīva forms of Vishṇu.

Chapter 81-83—Padmanābha—Lakshmī—Viśvarūpa—Vaikuṇṭha.

Chapter 84—Aiḍuka.

Chapter 85—Vyūhas of Vāsudeva—Avatāras such as Vāmana, Rāma, Dattātreya, Vyāsa—Balarāma—Pāṇḍavas and family members of Kṛiṣṇa.

Chapter 86-88—Matters architectural.
Chapter 89—Collection of wood.
Chapter 90—Suitable stones.
Chapter 91—Bricks.
Chapter 92—Vajralépa for buildings and images.

IX. SAMARĀNGAṆA SUTRADHĀRA OF KING BHOJA

Chapter 7—Part played by Pṛithu, son of king Veṇa (Vaiṇya) in construction of towers, cities and professions of men (Varṇa and Āśrama)

Chapter 34—Deals with things (sculptures and paintings) which are not fit and fit for insertion on kings' palaces, apartments etc.

[Here we find the text prescribing "Ratikrīdāparā nāryo nāyakastu yadricchayā" etc. (See Ch XIII)]

Chapter 70—About Liṅga and Pīṭha—Mukhalingas—reference to vajralépa—4 parts of Liṅga—size of images in proportion to door.

Chapter 71—called Citroddéśa;

1. Eulogy of citra—citra to be made on stone slabs or planks (Patta), cloth (Pata) and walls Here 'citra' may mean not painting only, but also sculptures.

2 Subject matters relating to citra viz (1) Vartı, (2) Kritabandha, (3) Lekhāmāna, (4) Varṇavyatikrama, (5) Vartanā, (6) Māna-unmānavidhi, (7) nine positions and (8) positions of hands

3. Measurements and forms of objects to be depicted.

4. Angas (essential limbs or features) of citra

Viz. (1) Vartikā, (2) Bhūmibandhana, (3) Lekhya (may be 'Lepya'), (4) Rekhākarma, (5) Karṣakarma (perhaps it will be 'Varnakarma'), (6) Vartanākarma, (7) Lekhana (should be something else—reading appears to be corrupt and (8) Reading corrupt

The texts and comparing these with the above mentioned 8 things may show that the last two things may be (7) 'Lékhākarma' in the sense of completion of the picture by imparting expressions on figures and (8) Rūpakarma (giving last touch of beauty by decorations etc).

Chapter 72—Bhūmibandha (preparation of the ground)—selection of earth and preparation of a Kalka (decoction or sort of plaster—then three kinds of bandhas (Kuḍyabandha, Pattabhūmibandha and Śikṣikābandha).

Chapter 73—Lépyakarma—earth for Lepyakarma—Brushes (vilekhā).

Chapter 74—Aṇḍakapramāṇam—and Kāyapramāṇa.

'Aṇḍaka' perhaps means the 'outline' in case of painting and the lump of earth in case of images, out of which the complete figure is made or may it refer to the modelling of the head?

The second topic viz. measurement of the limbs is continued in the next chapter from verse 4.

Chapter 75—Standard units of measure (upto verse 3 only).

The chapter appears to be corrupt and a part of it is perhaps to be read with the last chapter, and last portion from verse 33ff appears to have been misplaced and inserted from some other chapter.

Chapter 76—Pratimālakshana.

Materials for images ('Lekhāni' in line 2 should be 'Lépyāni') only upto verse 4½.

The general measurements of limbs of images (perhaps the last chapter is continued here).

Chapter 77—Iconography—of Brahmā—Nīlakaṇṭha—Kārtikeya—Balarāma—Viṣṇu—Indra—Vaivasvata—Śrī—Kauśikī—Aświns—Yaksha—Rākshasa—Kinnara etc.

Chapter 78—Defects of images to be avoided.

Chapter 79—Sthānalakṣaṇa (Positions):—

Nine main positions and 20 intermediate ones (verses 85 to 96 appear to have come from Ch. 81).

Chapter 80—Other positions—Vaiṣṇava, Samapāda, Vaiśākha, Maṇḍala, Pratyālīḍha and Ālīḍha—Three kinds of gaits of females—and three of males—Three kinds of plumblines (Brahmasūtra, Pārśvasūtra and Urddhvasūtra).

(This chapter appears to have been taken from S. Indian texts—curiously it is here only that the 'Tāla' measure is referred to).

Chapter 81—Five kinds of men and women.

(A part of the chapter after verse 24 appears to have gone to chapter 79. See above).

Chapter 82—Rasa and Dṛishṭi (expressions in the face and look).

Eleven Rasas (but only nine described) and Dṛishṭis of eighteen kinds.

Chapter 83—Positions of hands (Mudrās).

Twenty joined-hands (really 24 described).

Mudrā of single hand, 13 in number (really 14 described) —poses of hands in dancing (Nṛityahasta) numbering 28 (or 29?)—a part of the text is then lost.

X. Aparājitapracchā of Bhuvanadeva

Chapter 196-208—Liṅgas.

Chapter 209-210—Size and measurements of images (Tāla measure).

Chapter 211—Positions of images—8 kinds.

Chapter 213-223—Iconography—of Rudra—Dikpālas—Ardhanārīśvara—Umāmaheśvara, Kṛishṇa—Śaṁkara, Hari-Hara—Pitāmaha, Hari-Hara-Hiraṇyagarbha, Chandrārka-Pitāmaha—Brahmā—Navagraha—Vishnu—5 Vyuhas—24 varieties of Vishṇu image—Jalaśāyana—Varāha—Vaikuṇṭha—Viśvarūpa—Ananta—Trailokyamohana.

Images of door-keepers of gods

Twenty-four Jina images—their symbols, Devīs and Yakshas.

Devī images—5 Lālliyas—Navadurgā—Chāmuṇḍā—Kātyāyanī—7 Mātṛikās.

Chapter 224-231—On Citra.

Eulogy of citra—units of measurements (Tālas upto 16) —Materials of images (Aṣṭadhātu and other metals)—Citrapatra—Kaṇṭakas—colours—Paṭṭapatravartanā—Lépa-karma—preparation of the ground of painting—objects of painting (Kīrtimukha—Vyālas of 16 kinds)—Charac teristics of men and women.

Thirty-six kinds of implements (Āyudhas)—16 kinds of ornaments.

Instruments of Music—other things regarding music. Dancing of 9 kinds—Tāṇḍava and others.

XI. DEVATĀMŪRTIPRAKARAṆAM AND RŪPAMAṆḌANAM (Of Maṇḍana Sūtradhāra)

Chapter 1. Suitable stones for images.

Measurement of images in proportion to temples—to doors —heights of images—size in proportion to the sanctum (Garbhagriha).

Materials for images—Ashṭaloha—inauspicious images.

Chapter 2. Units of measurements—Tālamāna (upto 16 Tālas) of different objects—descriptions of Sapta, Aṣṭa and Nava Tālas.

Chapter 3. Brahmasūtra—eyes of images—positions of respective images in the 4 quarters.

Chapter 4. Iconography—of Viśvakarmā—Brahmā (4 forms)—Sāvitrī—Vedas—attendants of Brahmā—Ādityas—Navagrahas—Dikpālas.

Chapter 5. Vishnu images—24 varieties—Garuḍa—Vāmana—Rāma—Naravarāha—Jalaśāyi—Vaikunṭha—Viśvarūpa—Ananta—Trailokyamohana—Attendants of Vishṇu

Chapter 6. Śiva images·—Sadyojāta—Vāmadéva—Aghora—Tatpuruṣa—Iśa—Mṛityuñjaya—Vijaya—Kiraṇākṣa—Aghora(?)—Śrīkaṇṭha—Mahādeva—Sadāśiva.

Joint images·—Ardhanārīśvara, Umā-Maheśvara, Krishṇa-Śaṁkara, Krishṇa-Kārtikeya, Śiva-Nārāyaṇa, Hari-Hara-Pitāmaha, Sūrya-Harihara-Pitāmaha, Chandrārka-Pitāmaha, Chaṇḍī-Bhairava, Virūpaksa-Tryambaka-Harihara, Linga and Linga Pīṭha.

Chapter 7. Twenty-four Tīrthankaras—their Yakshas and Yakṣiṇīs.

Chapter 8. Gaurī images—Umā, Pārvatī, Lalitā, Śrī, Kṛishṇā, Himavantī, Rambhā, Sāvitrī, Trikhaṇḍā, Totalā, Tripurā, their attendants—

Images of Gaṇeśa—Kārtikeya, Navadurgā, Kshetrapāla, Ashṭamātṛikās, 12 varieties of Sāraswatī, Bhadrakālī, Chaṇḍī, Lakṣmī.

Positions of face, look and hands as in acting. Exposition of Rasas by driṣṭis and hands.

The above matters are more or less summarised in the Rūpamaṇḍanam.

South Indian Texts: I. Śukranīti (Jivānanda Vidyāsāgara, Cal. Edition)

Chapter IV—Section 4—from Verses 62ff.

1. Images of gods should be in form of a man in dhyāna.
2. Materials for images—their effects.
3. Measurements.
4. Secular images to be avoided.
5. Sāttvika, Rājasī and Tāmashıka images.
6. Measurements—Tālas of different gods (upto 16 Tālas).
7. Measurements of limbs.
8. Defects and beauty of images—their looks.
9. Proportion of temples and Maṇḍapas to images.
10. Vāhanas—implements—multi-handed and multi-faced images.
11. Iconography of Brahmā—Hayagrīva—Varāha, Nṛisimha—Ganeśa.
12. General rules—results of defective images.
13. Sāttvika images of Vishnu—Soma—Ganeśa—Śrī—36 varieties of Vishṇu images referred to.
14. Colours—Vāhanas.
15. Ganeśa images.
16. Measurements of figures of women—children.
17. Details of Sapta, Ashṭa, Nava and Daśatāla measures.
18. General appearance should be like that of a child or youngman.

[Though the date of the Śukranīti is not known, it is treated first becuse Śukra is regarded as the authority by all writers of the Southern texts. Notice that the Śukranīti, the Aparājita. and Maṇḍana refer to 16 Tālas, unknown to other works. This may point to the late age of the Śukranīti]

II. Vaikhānasāgama of Marīci

Paṭala 9—Nine attendants of gods.

Paṭala 10—Materials for Dhruva images—collection of stone.

Paṭala 14—Colours of Dhruvavéra (Varṇa-Saṃskāra).

Paṭala 15—Positions (Yogādi) of Dhruvavéra.

Paṭala 16—Yoga and Bhoga Āsana—Vīrāsana and Vīraśayana—Abhicārikāsana.

Paṭala 17—Śayana poses.

Paṭala 18—Colour—Vāhana and flag of Viṣṇu and Devī.

Paṭala 19—Colour of attendant deities.

Paṭala 20—Attendant deities in the third wall (compound).

Paṭala 22—Ten Avatāras (including Krishṇa and Balarāma).

Patala 23—Kautuka images.

Patala 24—Aṅguli measurements.

Paṭala 25—Uttama Daśatāla images.

Paṭala 26—Madhyama Daśatāla images.

Paṭala 27—Three kinds of Aṣṭatāla—other Tālas down to one.

Paṭala 56—Narasimha.

Paṭala 57—Matsya and Varāha avatāras.

Paṭala 58—Nrisiṃha and Vāmana.

Paṭala 59—Paraśurāma, Rāma and Balarāma.

Patala 60—Krishṇa.

Paṭala 61—Pañchavīra (as Vāsudeva etc.)—Consecration of Ābhāsa devas (images in paintings).

III. Vaikhānasagāma of Atri (Samūrtārcanādhikaraṇam or Atri Saṃhitā)

Chapter 11—Attendant deities in different compounds.

Chapter 12-13—Selection of stones.

Chapter 14—Consecration of stone images.

Chapter 15—Collection of wood (for images).

Chapter 16-17—Śūla for images.

Chapter 18—Rules for Dhruvavéra—Materials—three kinds of Citra (Citra, Citrārdha, Citrābhāsa)—Sthānaka, Āsana and Śayana poses.

Chapter 19—Colours for Dhruvavéra—earthen images—

preparation of earth—rajjubandhana—cast images of copper—pakka and apakka earthen image.

Chapter 20—Yoga, Bhoga and Vīra forms of Dhruvavéra —Viṣnu images of these forms.

Chapter 21—Colours—of Vishṇu and other gods.

Chapter 22—Measurements by Angulas.

Chapter 23—Daśatāla measure.

Chapter 24—Rules for Kautuka images.

Chapter 25—Casting of images (Madhucchiṣṭa).

Chapter 37—Images of Pañchamūrti—Visnu, Puruṣa, Satya, Achyuta, Aniruddha.

IV. Vaikhānasiya Kāsyapa Jñānakānda (Kāsyapa Samhitā)

Chapter 10—Different kinds of images for different kinds of temples (Abhicārika, Śayana etc)

Chapter 27-29—Collection of wood—stone—bricks.

Chapter 34—Pañchamūrti kalpa (5 Vyūhas)

Chapter 35—Form of the Absolute and rise of images of gods.

Chapter 36—Rules of the five images.

Chapter 37—Ten Avatāras.

Chapter 38—Worship of Śrī.

Chapter 39—Houses of attendant deities.

Chapter 40—Collection of wood (for images?).

Chapter 41-47—Śūlas.

Chapter 48—Preparation of clay for images.

Chapter 49—Colours.

Chapter 50—Citra—Citrāradha—Citrābhāsa—Units of measurements (upto 10 Tālas).

Chapter 51—Measurement of limbs of images.

Chapter 52—Ornaments of images.

Chapter 53—Sthānaka, Āsana, Śayana, Yoga, and Bhoga poses.

Chapter 54—Dhruvavéra.

Chapter 55—Niṣkala and Sakala images.

Chapter 56—Materials for images.

Chapter 57—Casting of images (religious matters only).

V. Nārada Śilpa (Raghavan's article in J.I.S.O.A., June 1935)

Chapter 66—Construction of the Citraśālā (picture gallery)—pictures of Devas, Gandharvas and Kinnaras in various styles of sports (vihāra)—sports of others—should be according to proper measurements (Yathāmānam), brilliant with various colours (Bahuvarṇabhāsuram) and decorated bodies.

Chapter 71—1. End of painting, according to Uśīnara, is to please gods and for decoration of the god of Vāstu (presiding deity of the building).

2. Three kinds of painting—Bhaumika (on floor), Kuḍyaka (on walls) and Urddhvaka (on upper regions-ceilings).

3. Various other kinds—Carvings, imaginary, of various materials—having forms of artificial and natural things—permanent (Śāśvata) or for short duration (Tātkālika).

4. They should be of proper measurement, of even lines (Abhisamarékhika).

5. Places where Bhaumika paintings are to be made—places and subjects of paintings on walls and upper parts—paintings of gods, Gandharvas, sages, great kings in hunting, warriors etc.

6. Qualities of Citra—of even lines (Samarékhika), Juṭka, Śānta (of calm appearance) and brilliant with all ornaments (decorations).

7. Other subjects to be drawn in different places.

8. Some sort of juices are to be applied to give firmness to these paintings—colours made of different things.

9. These citras refer to not only paintings but also sculptures as they may be nānādārumayam, nānālauhamaya and sudhānulépitaka.

[As the text is very corrupt, a full detail of the chapter is not possible. The text is placed after Kāśyapa's work, because it refers to Kāśyapa, Bṛihaspati, Anuloma, Marīci, Bṛindaka, Nādadhvani and Bhārgava Uśinara. The Ms. contains 83 chapters on architectural matters and images, which I could not utilise]

VI. Mayamatam and Mayaśāstram

(From P. Bose's Principles of Śilpaśāstra)

The printed text contains in chapter 1 a list of contents of the book in which we find 'Pratimālaksaṇa' and measurements of images of gods as being treated herein. But the printed book does not contain those chapters. P. Bose in his 'Principles of Śilpaśāstra' gave in the appendix the text of a work called 'Mayaśāstram' which, however, contains some matters regarding iconography. The two books together will thus furnish some idea about Maya's opinion about Iconography.

Mayamatam

Chapter 31-32—Rules about Yāna (Vehicles) and bed.

Chapter 33—Lingas (many verses of this chapter have been found by me quoted in the I-Ś-G-D-Paddhati).

Chapter 34—Pīthas.

[P. K. Acharya refers to chapter 36 being called 'Pratimālakṣaṇa']

Mayaśāstram

Chapter 1—Navatāla measures—materials for images—proportion of images to temples

Chapter 2—Measurement of small images.

Chapter 3—Defects of images—results thereof—position of nose, eyes, cheeks, neck, toes and fingers, buttocks. Citrakas may be of iron, stone, wood, earth, sand and sūdhā. Verses on Dristinirmāna and Prāṇasaṃsthāna—worship of artists required.

The following summaries are taken from P. K. Acharya's 'Indian Architecture'.

VII. Kāmikāgama

Chapter 64—Installation of the Linga.

Chapter 65—Pratimālakṣana Vidhi

Chapter 67-70. Consecration of gods, images, **Vimānas** and maṇḍapas.

Chapter 71—Courts and enclosures.

Chapter 72—Attendant deities.
Chapter 74—The Bull of Śiva.

VIII. KARAṆĀGAMA

Chapter 8—Courts and enclosures.
Chapter 9—Liṅga Lakṣaṇa.
Chapter 11—Pratimālakṣana.
Chapter 12—Intermediate (Madhyama) Daśatāla measurements, used for the images of females.
Chapter 13—Kanishṭha (smallest) Daśatāla Lakṣaṇa.
Chapter 14—Uttama-Navatāla Lakṣaṇa.
Chapter 19—Collection of earth (for images).
Chapter 59—Installation of the Phallus.
Chapter 60—Parivāra (attendant deities).
Chapter 136—Collection of earth (more details).

Part II

Chapter 7—Pīṭha lakṣaṇa.
Chapter 8—Śakti (female deities).
Chapter 11—More details on collection of earth.
Chapter 13—Purification of icons (Bimba).
Chapter 15—Nayanonmīlana (chiselling the eye).
Chapter 18—Purification of Bimba.
Chapter 20—Śivaliṅga sthāpana.

IX. SŪPRABHEDĀGAMA

Chapter 30—Aṅguli measurement.
Chapter 33—Linga lakṣaṇa.
Chapter 34—Sakala lakṣaṇa (Images of Īśvara and other deities).
Chapter 36-38—Installation of Liṅga, images of gods and female deities (Śakti).
Chapter 39—Parivāravidhi (attendant deities).
Chapter 40—The Bull of Śiva.

X. VIŚVAKARMIYA ŚILPA

Chapter 2—Height of man in different ages—measurements of wood and stone for images.

Chapter 5—Measurement of images of planets—those of Liṅga and Pīṭha.

Chapter 8—Characteristics of goddesses like Brāhmī, Maheśvarī etc.

Chapter 11—Images of Lakshmī—Brāhmī—Maheśvarī—and other goddesses—Image of Indra—Dikpālas—Grahas and other gods

Chapter 12-13—Crowns—Crests and head-gear.

Chapter 14—Thrones—crests etc. of gods—repair of temples.

Chapter 15—Proportions of doors to phalli.

Chapter 16—Proportions of door to other images.

Chapter 17—Images and temples of Ganeśa.

XI. Āgastya (Mss. not properly edited)

Chapter 1—Systems of measurement

Chapter 2—Uttama Daśatāla.

Chapter 3—Madhyama Daśatāla.

Chapter 4—Adhama Daśatāla.

Chapter 5—Pratimālaksana.

Chapter 6—The Bull.

Chapter 7—Nateśvaravidhi.

Chapter 8—Shodaśa Pratimālakṣaṇa.

Chapter 9—Collection of wood.

Chapter 10—Preparation of earth for images.

Chapter 11—Varnasamskāra.

In another (Madras) Ms ,—Ch 1. Measures. Ch. 2. Uttama Daśatāla Ch 3. Madhyama Daśatāla. Ch 4. Somaskaṇda. Ch. 5. Chandraśekhara. Ch. 6. Vṛiṣabha of Śiva. Chs. 7-14 are doubtfully ascribed to Āgastya and contain the following —Images of Tripurāntaka—Kalyānasundara, Ardhanarīśvara, Pāśupata, Bhiksāṭana, Chaṇḍeśānugraha, Dakshināmūrti, Kāladahana Ch. 19. Images. Ch. 21. Śūla. Ch. 22. Rajjubandhana. Ch. 23. Varṇasaṃskāra. Ch. 24. Chiselling of eyes.

XII. Īśānaśivagurudeva Paddhati (Parts III and IV)

Paṭala I—Reference to names of 28 Āgamas (Śaiva).

Paṭala 2 — Goddess Sandhyā described in Brahmāṇī, Vaiṣṇavī and Śaivī forms.

Paṭala 7 — Six Mudrās for worship of Sun, and ten for Śiva—five others.

Paṭala 8 — Maṇḍalas.

Paṭala 12-14 — Āvaraṇa deities.

Paṭala 23ff—Architectural matters.

[In the 27th Paṭala, a verse is quoted from a book named 'Viśvakarmīya'. Whether it is the text mentioned above is to be enquired]

Paṭala 33—Suitable wood and stone and bricks for buildings—Sudhā.

Paṭala 35—Position of attendant deities in various parts of temples.

Paṭala 36—Materials for Liṅga and Pīṭha—classes of Lingas.

Paṭala 37—Nāgara, Drāviḍa, Vesara and other kinds of Lingas (quotations from 'Maya' are found in the printed Mayamatam).

Paṭala 38-39—Liṅgas and Pīṭhas of various kinds.

Patala 40—Mukhalingas—Liṅgas of crystals, jewells, iron and wood.

Paṭala 41—Chala, Achala and Chalāchala Liṅgas—Definition of citra of three kinds—11 kinds of units of measurement (according to proportion with other things).

Details of Talā measures—Tālas of different gods—Uttama Daśatāla measure.

Paṭala 42—Madhyama Daśatāla of goddesses and gods—smallest (Kaniṣṭha) Daśatāla of females.

Paṭala 43—Images of 16 gods—Umā with Śiva, Umā—Skanda—Śiva, Bhujangatrāsanṛtya, Gangādhara, Tripurāntaka, Kalyāṇasundara, Ardhanārīśvara, Pāśupata, Kaṅkāla, Harihara, Bhikṣāṭana, Chandeśānugraha, Dakṣināmūrti, Kālakāla, Liṅgodbhava, (two missing may be Chandramūrti and Vṛiṣabhavāhana), Bull of Śiva, Triśūlas, Khatvaṅga, Image of Gaṇeśa.

Paṭala 44ff—Ceremonials in connection with installations of images.

Images of various gods are described herein—such as Sūrya, Ganeśa, Skanda, Hara-Nārāyaṇa, Durgā, Gaurī, Sarasvatī, Śāstā, Bhutanātha, Saptamātṛikās etc.

Patala 64—Repair of images and Liṅgas.

XIII. Mānasāra

Chapter 51—Trimūrtilaksaṇa—materials of images—three kinds of citra—Sthāvara and Jaṅgama images—Bhangas—images of Brahmā, Visnu and Śiva.

Chapter 52—Classes of Lingas—measurements.

Chapter 53—Pīthas.

Chapter 54—Female deities: Saraswatī, Lakshmī, Sāvitrī, Mahālaksmī, Mātṛi, Durgā, Manonmānī, Seven Mothers.

Chapter 55—Jain images (no names).

Chapter 56—Buddha image.

Chapter 57—Images of sages like Agastya, Kāśyapa, Bhṛigu, Vaśiṣṭha, Bhārgava, Viśvāmitra, Bharadvāja

Chapter 58—Yakshas, Vidyādharas, Kinnara etc

Chapter 59—Images of Devotees (Bhaktas).

Chapter 60-63—Vāhanas, Haṃsa, Garuda, Bull, Lion

Chapter 64—General measurements

Chapter 65—Uttama Daśatāla.

Chapter 66—Madhyama Daśatāla.

Chapter 67—Pralamba (Plumb-lines)—three poses.

Chapter 68—Casting of images.

Chapter 69—Chiselling of eyes.

[If we compare the contents of Mānasāra with those of the other texts, it will be seen that the Mānasāra was not a standard work on sculpture, as well as architecture, as shown before.

XIV. Kāsyapaśilpa (Ānandasrama Edition)

In the last few chapters it is also called the 'Aṃśumadbhéda', the name of an Āgama.

Paṭala 46—Attendant deities (Parivāra devatā).

„ Bull, Agni, Saptamātṛikās.

Paṭala 47—(Parivāra contd.), Vināyaka.

Paṭala 48—(Parivāra contd.), Sanmukha, Jyeshṭhā, Viṣṇu, Aśvinī, Manes, Yama, Rohinī, Nirṛiti, Apsarās, Varuṇa, Maruts, Rudra, Sun, Bhava, Gaurī, Śarva, Śiva, Bhṛigu, Agastya, Gaṇeśa, Saraswatī, Lakshmī, Vasus, Kuvera, Kālāgni (Rudras), (Śrīkaṇṭha), Nāga, Śani.

Paṭala 49—Liṅgas.

Paṭala 50—Pratimālakṣaṇa: Materials—definition of citra, 16 forms of Śiva, Sukhāsana, Umāskanda, Chandramūrti, Vṛiṣabhavāhana, Nṛtyamūrti, Gangādhara, Tripurāri, Kalyāṇasundara, Sārdhanārī, Gajahā, Pāsupata, Kaṃkāla (Kaṅkaṅgala), (Hari-Hara), Bhikshāṭana, Chaṇḍeśvaraprasāda, (Dakshiṇāmūrti), Kālāruṇa (Kālaka) (really 17 in number).

Uttama Daśatāla measures.

Paṭala 51—Madhyama Daśatāla measures, Saraswatī, Durgā, Umā, Bhūmi, Mātṛins, Lakshmī, and Jyeṣṭhā should have this measurement.

Paṭala 52—Adhama Daśatāla to be applied to Chandra, Āditya, Aświns, Rishis, Guha, Ārya, Śatamukha, Chaṇḍéśa, Kshetrapāla.

Paṭala 53-55—Uttama Navatāla, Madhyama, Adhama Navatāla.

Patala 55-57—Ashṭatāla and Saptatāla measures.

Paṭala 58—Pīṭhas.

Paṭala 59—Stones to be used in Pīthas.

Paṭala 60—Position of various gods in town-planning.

Paṭala 61-78—The 17 gods mentioned above plus Liṅgodbhava.

Paṭala 79—Collection of wood.

Paṭala 80-81—Śūla.

Paṭala 82—Rajjubandhana.

Paṭala 83—Preparation of earth for images.

Paṭala 84—Kalkas (decoctions) to be mixed with earth.

Paṭala 85-87—Colours (Varṇasaṃskāra).

[In the Aṃśubheda quoted by Gopinath Rao in the chapter 49 'Pratimālakṣaṇa', are found descriptions of gods such as Āditya, Soma, Śani, Devī, Durgā, Laksmī,

Sarasvatī, Bhūmi, Saptamātṛkās, Vīrabhadra, Jyeshṭhā, Sadāśiva, Subrahmanya, Dikpālas, Vasus, Nāgas, Pitṛins, Saptarshins, Maruts, Kshetrapāla, besides those found in Kāśyapaśilpa Paṭalas 61 to 78]

This Kāsyapaśilpa if compared with the Āgama of Kāśyapa mentioned above and the quotations found in Bhaṭṭotpala's commentary on Bṛihat Saṃhitā will prove that several works were ascribed to Kāśyapa in the South which were different from and later than Kāśyapa's work utilised by Bhaṭṭotpala which was a work of Northern India]

XV. ABHILASITĀRTHACHINTĀMAṆI (Or Mānasollāsa)
Part I—Vimsati 1—Ch. II·

1. Previous writers consulted were Viśvakarmāmata, Mayaśāstra—rules laid down in Matsya Purāṇa and Pingalāmatam.

2. Images are to be made of 9 Tālas—their features.

3. Preparation of earth for coatings on earthen image (?) and rules for casting images. (See S. Saraswati in J.I.S.O.A., Vol. IV, No 2).

Part II—Ch. 1:

1. Architectural matters.
2. Citrakara's qualifications.
3. Characteristics of good painting—their rekhā, following the rules (Vidhi)—Patralekhā—colouring —full of Rasas.
4. Preparation of ground for painting.
5. Preparation of brush of three kinds.
6. Colours—Pure and mixed.
7. Positions of 5 kinds—Ṛiju, Ardha-ṛiju, Sāchi, Ardhākshi, Bhittika (Pārśvānga).
8. Pakshasūtra (Plumb lines).
9. Tālas—measurements of limbs (Pradeśa).
10. Eyebrows.
11. Sāmānyacitra prakriyā—9 positions (Sthanāks) and sub-classes.
12. Iconography of—24 varieties of Vishṇu images—Hari (8 handed)—Vāmana, Rāma, Nṛivarāha, Narasiṃha,

Trivikrama, Matsya, Kūrma, Bramhā, Mahādeva, Bhairava, Ardhanārīśvara, Umā-Maheśvara, Hari-Hara, Swāmi Kārtikeya, Gaṇeśa, Kālī, Kātyāyanī, Indra, Agni, Yama, Niṛiti, Varuṇa, Vāyu, Kuvera, Īśāna, Mātṛikās, Śrī, Nāgas, Daityas etc.—Kshetrapāla, Kāmadeva, Navagrahas.

13. Viddha and Aviddha paintings, Dhuli and Rasa citras.

XVI. SĀRASWAT CHITRAKARMA ŚĀSTRA (Summary given by Raghavan, V., in Historical Quarterly, 1933, Vol. 9)

1. Definition of citra in wider sense—citra, ardha-citra and citrābhāsa, citra in stone and metal, paintings on walls, planks, cloth etc.
2. Measurements of male and female figures.
3. Measurements of 9 images (upto Ch. X).
4. Coating of earth and Sukla (lime).
5. Varṇasaṃskāra (colours).

XVII. ŚILPARATNAM

Part I—Ch. 46:

1. Definition and classes of citra.
2. Materials.
3. Suitable subjects for citra.
4. Preparation of sudhā for ground of painting.
5. Brushes (Lekhanī).
6. Positions of figures (5 main, 4 varieties).
7. Preparation of colours.
8. Vajralépa.
9. Classes of painting: Rasa, Dhuli, Citra (and Nāla?).

Part II—Iconography:

Chapter 1. The materials for images—their collection.

Chapter 2. Eighteen kinds of Linga-mūrtis:—

Sukhāsana, Skaṇḍa, Umāsahita, Chandraśekhara, Vriṣavāhana, Nṛittamūrtis, Gangādhara, Tripurāri, Kalyāṇasundara, Ardhanārīśvara, Gajahā, Pāśupata, Kankāla, Ardhanārāyaṇa, Bhikṣāṭana, Chaṇḍeśvaraprasāda, Dakshiṇāmūrti, Kālāri, Chala and Achala images.

Liṅgas of various materials—method of casting (Madhūcchiṣṭa), Various measurements, Head of Liṅgas, Vāṇa Liṅgas.

Chapter 3. Measurements of Liṅgas, Mukhaliṅgas, Pīṭha.

Chapter 4. Height of images, of Kautuka images, rules of Tālas.

Chapter 5-7. Daśatāla, Uttama, Madhyama and Adhama.

Chapter 8-10. Navatāla, Uttama, Madhyama and Adhama.

Chapter 11-15. Uttama aṣṭatāla, Uttama saptatāla, ṣaṭtāla, Uttama and adhama, Pañchatāla, 4 Tāla measures.

Chapter 16. Coronets.

Chapter 17. Śūlas of Lépyavimba (clay images).

Chapter 18 Rajjubandhana.

Chapter 19. Preparation of earth for lépya image.

Chapter 20. Iconography of Śiva, Umā, Kumāra.

Chapter 21. Vāhanas.

Chapter 22. Forms of Śiva as mentioned in Ch. 2.

Chapter 23. Vaisṇava images.

Chapter 24. Śakti images.

Chapter 25. Indra, Agni, Yama, Nirriti, Varuna, Vāyu, Soma, Brahmā, Śesa, Mahāganapati and other forms of Ganeśa, Kārtikeya, Nāga, Yakshī, Śāstā.

Miśramūrtis:—Harihara, Śakti—Ganapati, Lakshmī—Nārāyaṇa, Ardhanārīśvara, Śamkara—Nārāyaṇa.

Sūrya, Garuda, Aświns, manes, Apsarās—11 Rudras, Kshetrapāla.

Avatāras E.G Vāmana, Varāha, Nṛisiṃha, Trivikrama, Fish, Kūrma, Brahmā, Kumāra, Nāgas, Vetālas, Dānava, Grahas, etc.

Chapter 26. Defects of images.

Chapter 27. Pīṭhas.

Chapter 28. Kuṇḍas and Maṇḍalas.

Chapter 29. Broken images and temples.

The preceding summary of the contents of the available texts on sculpture and painting reveals some interesting facts. Most of the works deal with iconography and iconometry. Here and there some information may be gathered

about painting, though all the texts agree in saying that images of gods made in the form of painting is beneficial to worshippers. Hence rules of image making are to be equally applied to both structural and painted figures of gods. Only the Vishṇudharmottaram, Abhilaṣitārthachintāmaṇi, Śilparatnam, the Samarāṅgaṇa Sūtradhāra and the Aparājitapracchā deal with paintings proper (of course along with images). The summary will further show how the works of Northern India differ in style of treatment of the subject from those of the South. The later works of both the schools were acquainted with those of the either school. The works may further be divided into Śaiva, Vaiṣṇava and Śākta writings and the Saura Kāṇḍa of the Haya. Pañch. is the only known treatise of the Saura sect. Though it is difficult to ascertain the exact period of writing of many of these texts, they may be approximately said to have been collected from the Third century A.D. to the 16th century. The traditions recorded in them slightly vary from one another but they must be regarded to have been handed down from a very ancient period. These, therefore, form the fundamental principles of Indian sculpture and painting, some of which will now be discussed below

§8. Definition and Classes of Citra

The definition of a Citra is found in only one text viz. the Śilparatnam (46.2). It runs thus, "Whatever there are in the three worlds, moveable or immoveable, a representation (karaṇam, literally 'making of or construction of') thereof according to their individual nature is called Citra" (Jayaswal, J.B.O.R.S., 1923, Part 1, p. 31. Also see Visn. Dharm. passage quoted in p. 323). This definition thus presumes that a citra (representation) can be made not only of what we see in this world, but also of things of other worlds. Thus citra may be of gods and other superhuman beings or celestial things as conceived by the Indians to be really existing. Hence follows the rule that 'one should depict what is probable' or what the

artists thought to be probable. "An intelligent artist paints what looks probable, but never what transcends it" (Viṣ. Dhar., Ch. 43). The next quality of a citra is that it should be depicted according to individual nature of the thing to be depicted. But things may be visible or invisible if not belonging to this world. Hence it is laid down that "Things which are usually visible to all should be well represented resembling (what is seen)", for the "chief aim of painting is to produce likeness" (Sādṛiśyakaraṇam) (Vish. Dhar., Ch. 42). For the things not usually seen, their individual character may be known only from texts in which they are described and strict rules have thus been laid down for them, as in the case of gods and goblins in the pratimā-laksanam. Citra as a general term, therefore, means any kind of representation of any conceivable thing.

But 'Citra' again has got a technical meaning, being one particular class of citras only, the other two being Citrārdha (or Ardhacitra) and Citrābhāsa. This classification is known to all the South Indian texts. According to them a Citra is "the representation of the whole body" of the thing represented. This, therefore, refers to figures in the round, fully figured sculptures. A 'Citrārdha' is defined as 'a representation, the body of which is shown in part or half'. This therefore, refers to alto-relievos or Bas-reliefs. Such 'Ardhacitras' are enjoined to be attached to walls (Bhitti) and such other places. The next class of citra is called 'Citrābhāsa' which is defined as 'what representation is written (i.e. depicted with brush etc.) on high or low walls or Paṭa (canvas)' or as "writing of those things is known to ancient masters of citra as Citrābhāsa". Thus "Citrābhāsa" is undoubtedly what we know as painting proper including the frescoes. But certain verses may indicate that as Citrābhāsa refers to a citra in which the figures are partially shown, it may also include sculptures in very low reliefs or carvings on wood and metals. This is apparent from the injunction that "Ābhāsa as well as Citras and Citrārdhas may be made of dhātus" (Kāś. Śilpa 50, Verse 6). This may also include small figures

carved on gold and copper plaques as have been discovered at Lauriyanandangaḍ and other places.

Thus the South Indian texts give a wider meaning to the word 'Citra' which is generally known to us as painting. Though these divisions or meaning of citra is not clearly mentioned in any North Indian text, it is likely that this was known to ancient writers on Śilpa, for the Vishṇudharmottaram while writing on citra lays down that these "rules also refer to carvings in iron, gold, silver, copper and other metals and also to images of iron, stone, wood and clay" (V.D., Ch. 43). The same book after dealing with citra (painting) dealt with the images of gods i.e. figure sculptures. All these indicate that ancient 'Citrasūtra' referred not only to painting but also to sculptures—in the round as well as in low reliefs. To North Indian writers, images of stone and wood were known as 'Śastrotkīrṇa' images, and this might include figures carved on stone or wood by implements Thus they did not mention the 'ardhacitra' class of figures, although rules of 'citra' were applied to all kinds of reliefs as well as to painting. That the word 'citra' also meant a sculpture is evident from the dedicatory inscriptions of the Mahoba Buddhist images (11th century), in which a citrakāra (evidently meaning a sculptor—not painter) named Sātana is mentioned (Coomaraswamy, H. I. Indo. Art., p. 110). Hence we are warranted to refer to the canons of sculpture and painting as the Citrasūtra or Citraśāstra forming a part of the Vāstuvidyā. Thus any kind of work of manual art might be called a 'citra' as is evident from the Citrakarmaśāstram of Bhīma which refers to 189 kinds of citra including Nakhacitra Keśacitra, Śalyacitra, Āṅgacitra, Bhāvacitra, Śilācitra, Lohacitra etc. (H. Mitra, 'Indian Art & Aesthetics', p. 119). Similarly, according to the commentator of the Kuṭṭanīmatam, śilpa includes ālékhya, lékha, dārukarma, citikarma, pāṣāṇakarma, raupyakarma, devakarma and citrakarma. In North India, a synonym of citra, meaning a painting or portrait painting is 'ālékhya'. Thus a review of the canons on sculpture and

painting will also mean that of the Śilpaśāstra or the Citraśāstra.

§9. Materials of Citra

A review of the classes of citra naturally leads us to the classification of sculptures according to their materials. As the matter has been dealt with in detail by Banerjee (Elements of Hindu Iconography), only a few aspects of it will be discussed here. Most of the śilpa texts deal with the materials of the images of gods; very few with those of painting and almost none say anything about the reliefs. The Atri Saṃhitā, Ī-Ś-G-Paddhati and the Kāśyapaśilpa and the Śilparatna, however, refer to materials of an ardhacitra (low reliefs). Most of them say that it should be made of sudhā. The Atri Samhitā says that they should not be made of iron, but iron may be mixed with gold (Ch. 19. 64). The Śilparatna, however, says that an ardhacitra may (like a citra) be made of clay, sudhā, wood, stone, iron (metals) and brick. Sudhā, generally meaning lime, in these texts refer to a specially made preparation in which lime or lime-stone was the main ingredient (Mayamatam, Ch. 18 92ff; Śilparatna, Pt 1 14 58ff; Ī-Ś-G-P, Paṭala 33. 52ff) mixed with decoctions of various fruits and herbs (or iron as in the Haribhaktivilāsa). This sudhā was to be made firm and strong by another prepared decoction known as the Vajralépa or Bandhodaka. The Atri Saṃhitā (Ch. 19. 2) refers to another preparation known as 'Ghaṭa-Śarkarā' which is really Kaṭa-Śarkarā (Samar., Ch. 72, Verse 38), or Kadi-Śarkarā mentioned by Gopinath Rao. It is perhaps right in taking this to be something like the stucco and not a mixture of brick and mortar (Banerji, p. 228), for none of the texts refers to brick (Isṭaka) in the preparation of this special compound (See Appendix H).

Regarding the materials of images in high relief or in the round, the texts lay down elaborate rules for their selection. Stones were classified with names according to their qualities. Various signs and veins of the stones were to be care-

fully examined and a particular variety of stone was suitable for a particular image, some being unfit for image-making. The Āśvalāyana Gṛ. Sūtra Pariśiṣṭa prescribes different materials for images of the different Grahas. Thus Sun's image was to be made of copper, Soma's of crystal, Maṅgala's of sandal wood, Budha's of Gold, Vṛihaspati's also of gold, Śukra's of silver, Śani's of black iron, Rāhu's of lead and Kétu's of bronze. The Kātyāyana Saṃhitā prescribes worship of image (Pratimā) or drawings on Paṭa (paint on canvas). The Ī-Ś-G-Paddhati classifies the materials as—stone, jewels, loha, wood, earth and Kshaṇika, each of which contain many materials. Ratna includes various jewels such as crystals, diamonds etc. Loha includes eight metals—gold, silver, copper, bronze, iron etc. The Kshaṇika images were to be made of sand, cowdung, paiṣṭa (several things crushed and may or may not be mixed with water), a sour thing (amla), charcoal (gaula), fruit and butter. The Agni Purāṇa also refers to such temporary images made of salt, ghee and cloth. The Śilparatna refers to images of sand, cowdung, paiṣṭa, rice, charcoal flower and butter. That made of flower is also known to the Hayaśīrṣa. Pañcha. as the Kausumī image. This text further refers to Gandhaja image, perhaps to be made of chandana and guggulu and to images made of manaḥśilā (mancchāla?). The 'paiṣṭa' images undoubtedly refers to images made of 'piṭuli', but may include what is known as Dhuli citra in some of the texts, of which more will be said later on.

Clay images next draw our attention. They are known to the texts as 'Lépya' or mṛiṇmaya image. Mriṇmaya image may be again divided into Apakka and Pakka (Atri. Sam., 19.66). Pakka images are to be made of clay and then burnt in fire. The 'apakka' images are the real 'Lépya'. They are not made generally wholly of solid earth, but of wooden (or bamboo) sticks on which were tied choirs or straw which were then coated over (lépita) with clay. These sticks were known as śūla, the making of which has been described in about all the texts. The 'Rajjubandhana' i.e. how the straw or choirs etc. were to be tied on the śūlas is also enjoined

in the śilpa works. This kind of image is also called 'Miśra' image, as it is not made of one single material (i.e. not śuddha). The Śamarāṅgaṇa Sūtradhāra (Ch. 76) mentions 'Lékha' and 'Citra' as two different kinds of images (the two meaning the same), but the word 'Lékha' here must be 'lépya' as is evident from verse 3 where 'Lékhya-citra' is used in the plural (Dvivachana) differentiating one from the other. The Atri Samhitā enjoins that Viṣṇu images should not be made of burnt clay. Images of other gods also should be of unburnt clay except that those of Jyeṣṭhā, Ganeśa and Śāstā may be either burnt or unburnt. The figures of Piśāchas should be always of burnt clay. In case of 'Lépya and 'Citra' images the Agni Purāna and some other texts enjoin that their purification and bath ceremonies may be performed mentally and their worship done with flowers only and not water, naturally because water will wash away the clay or colour

The clay which was to be coated on the images (Lépya clay) was not an ordinary one; but regulations were laid down for making it specially prepared and made suitable for such images As in the case of 'Sudhā', a clay also was to be specially selected and mixed with various decoctions called kalkas. This preparation of clay was also different from that of another (also called Lépyakarma) which was meant to be coated over on walls or planks on which paintings were to be made. The latter was used as the ground for the frescoes (Samar., Ch. 72). The clay for lépya images was also to be mixed with a hardening material known as the vajralépa or the Aṣṭabandha or Bandhodaka. Four or five kinds of vajralépa are mentioned in the texts [See Brihat Samhitā, Vish. Dharm. (Ch. 92), Mayamatam, (Ch 34 and others)] and they are said to give strength and long life to images and structures (See Appendix).

The ancient Indian terracottas, like the stucco figures, were also perhaps made out of a specially prepared mixture of clay and other things and then baked in fire. The toys made of such baked clay were known as 'Pustas' (or 'Buṣṭa' in Panini's grammar).

Images could be in the form of paintings; and Banerjee has shown the popularity of such images. The Atri Saṃhitā refers to pratishṭhā of Citrābhāsa (Ch. 29). Thus, there is a necessity of the consideration of the materials of paintings. The śilpa texts which deal with painting (citravidyā) proper all deal with this matter. The ground on which paintings were to be made consisted of wooden planks, paṭa (canvas), paṭṭa (planks or flat stones) and walls of buildings. These were to be coated over with a specially prepared plaster of clay or sudhā (lime) mixed with various things. A whole chapter (Ch. 72) is devoted in the Samarāṅgaṇa to this preparation of the base, called 'Bhūmibandha', and different rules are laid down for making the different materials (cloth, wood, wall or stone) suitable for paintings. This preparation of the plaster is also known as 'Lépyakarma' (Samar., Ch 73; Aparājita., Ch. 232; Viṣṇudha., Ch. 40; Śilparatna, Pt. I, 46. 14-25). The Mānasollāsa (Pt. II, 1) refers to another kind of plaster to be placed on walls. The Aparājita. (Ch. 231) describes treatment of paṭṭa for painting. P. Bose quotes verses from the Pañchadaśī and A. M. M. Kalpa regarding paṭacitra.

Detailed rules are also laid down for the preparation of the brushes for painting. They were known as tulikā, vilékhā, lekhanī, kurchana and so on. They were of three kinds according to the Mānasollāsa (Pt. II, Ch. 1)—Tinduka (made of reed) with point made of copper, vartikā (made of kajjala mixed with rice water and then hardened and pointed) and lékhanī (brush made of hair from the ear of a calf). Some of these were used in drawing the outline on the ground of painting and others for colouring. Preparation of colours also formed important subjects for discussions in the texts (known as 'Varṇa-samskāra').

The material used in colouring also led to the classification of citra into Rasa and Dhuli (Śilparatna and Mānasollāsa). Rasacitra does not refer to sculptures which express some sentiment (Rasa) but means those prepared with a jucy or liquid colour—colour mixed with water, oil. This is quite clear from the Mānasollāsa (or Abhilaṣitārtha Chintāmaṇi,

III. I. 942) which says "Sadravairvarṇakairlékhyaṃ rasacitraṃ vicakṣaṇaiḥ". Dhuli citra, on the other hand is one painted with dry (powdered) colours. The Śilparatna (Pt. I, Ch. 45, Verses 139 to 144½) indicates the ingredients of the colours to be powdered for application on Dhuli citra. The Mānasollāsa also refers to its colours to be grounded or powdered (churṇaivarṇakairlékhyam). Banerjee has given examples of Dhuli citra used by Vaiṣṇavas in exhibiting scenes from the life of Krishṇa. The Maṇḍalas which are drawn before images are also coloured with powders of dry vilva leaves (green), vermillion (red), turmeric (Haridrā) (for yellow), burnt rice (for black), rice (white). The Agni Purāṇa (Ch. 30, 19-20) refers to the preparation of colours for the Maṇdalas (cf. Hayaśirṣa. P., Saura K., Ch. 28). The Dhulicitra is described as kshanika' '(Śilparatna, Verse, 144) and as 'tātkālika' (temporary—Nārada Śilpa) as is evident from its very nature. Kramrisch has referred (Introduction to Vish. Dharm.) to a preparation of colours found in the Samyukta Nikāya.

Many of the metal images in Bengal are known as made of 8 metals (astadhātu) mixed together. The texts though referring to metal images, generally do not refer to this mixture, except that some refer to those made of Aṣṭaloha, but do not say that they should be mixed up in the making of the images The method of casting images has been described in a few texts, but mentioned in many. They were to be made on casts of wax (called Madhūcchiṣta or Siktha). Only the Mānasollāsa gives some details about it (cf. Atri Samhitā).

Various materials were prescribed in making of images not only from the view point of stability or utility but also because Indians believed each material to be producing some good or bad results. Some are said to be giving moksha (liberation), others only wealth and the others prosperity. Generally images were to be made of one material and the pedestals (pīṭha) were also to be, with a few exceptions, of the same material as the image. Several texts compare the efficacy of the different materials; while some

are called best, others are called worst, if not prohibited altogether. The Atri Saṃhitā lays down (Ch. 18) that a Dhruvavéra should not be worshipped in painted form (ābhāsa), though many other texts speak highly of the painting of gods.

§10. Classifications of Citra

Classification of sculptures, images and paintings is another important subject dealt with in almost all the texts. Classification is based on various criterions. Classifications according to materials have already been noted above. The most common classification is of the auspicious and inauspicious sculpture or painting. Those conforming to the prescribed rules, regarding materials, measurements and general features are auspicious ones, while those violating the injunctions are regarded as inauspicious and harmful in various ways to the owner and the artist himself. One should not place in his own house the paintings drawn by one's own self. Several kinds of figures, in sculptural form or in painting, were prohibited from being displayed in or drawn on residential houses; some might be placed in the assembly halls of kings and not even in their residences. But almost all kinds could be drawn up on temples; these restrictions were not to be applied in their case. Several kinds of figures expressing particular Rasas were prohibited in residential quarters. Images of gods having terrific appearance are forbidden to be set up in houses. They could be worshipped in towns, or villages and some only in forests. Images or paintings having some defects (as laid down in the texts) were to bring calamities. Hence all the texts refer to these defects.

The next division was according to the Guṇas (Sattva, Rajas and Tamas) possessed by the sculptures. These three guṇas were possessed by men as well as gods. Hence some of the images of a particular god may be of the sattva guṇa, while others of the same god might be Rājasika or Tāmasika. They vary in their attributes and also colours. The white

colour is Sättvika, red indicates the Rajas, and black is of the Tāmasika class. Images of gods, in sculptural form or in paintings, were thus to be coloured according to the guṇa possessed by each. South Indian texts lay down rules for colouring the images; North Indian texts on iconography refer to the colour of the god, and their images, therefore, were to be of the same colour.

Another classification of images was that of the 'Single' or 'Joint images'. When the image is of a single god, it is of the first kind. When two or more gods are mixed up in one image it is called a joint (Miśra) image. Some of them besides Ardhanarīśvara or Harihara or Hara-Gaurī or Lakshmī-Narāyana, are Śakti-Ganapti, Samkara-Nārāyaṇa, Trimūrti, Krishna-Śamkara, Hari-Hara-Pitāmaha, Harihara-Hiraṇyagarbha, Chandrārka-Pitāmaha, Mārtaṇda Bhairava and so on. Banerjee has shown that many of these images originated from synchretism of the Indians. That this arose in a late period is evident from the fact that the late texts contain names of innumerable such gods unknown to the early ones.

The division into Nāgara, Drāvida and Vesara, as noted in architecture, is also found in the classification of sculptures and paintings. This is found only in the texts of the Southern school and specially of those of a late period. This further shows, as has been noted by me before, that this kind of division did not really mean to the South Indians the different orders of Vāstu or images (of North India, South India, etc.) but only different varieties of the South Indian structrure or images. Thus this division is applied in case of the Lingas, Pīṭhas as well as to the Citrapatra, Citrakaṇṭaka and varṇas etc. (Aparājitapracchā, Ch. 227-229.)

Several other minor forms of classification are noticed in the Southern texts. These are the divisions of images into Cala, Acala, and Calācala; or Dhruva, Kautuka, Utsava, Snapana and Bali; or into Sthānaka, Āsana, and Śayāna; or into Yoga, Bhoga, Vīra and Abhịchārika. These have been thoroughly discussed by Banerjee and need no

repetition. But this is to be noted that such classifications were not known to the northern texts.

The next division of images in sculpture and painting was according to their size and the measurements followed or the proportion of their various limbs. All the texts refer to the various units of measurements used in architecture and sculpture. This list of units begins from finest particles seen in Sun's rays (Trasareṇu or Rathareṇu) and ends with the Hastas (cubit). The most common measurement used however was the 'Aṅgula' (width of a finger). The various parts of a temple or image, however, maintained a proportion amongst them and hence arose various kinds of proportionate measurements. Thus the Ī-Ś-G-D-Paddhati refers to 11 kinds of measurements to fix the proportion. They are in relation to the Liṅga, Garbha, temple, door, foundation, kiṣku, tāla, Mulāngula (mātrāngula), mānāngula, and height of the sacrificer or owner of the image. Many of these are also known to the other texts of both the schools. Banerjee has discussed the details about these measurements. His remarks about the late origin of Tālamana, however, cannot be definitely accepted. Its non-occurance in the Brihat Saṃhitā may be explained, as said before, by assuming that this measurement was special to the Southern school of artists, whereas the Brihat Saṃhitā and Kāśyapa were of the Northern school. As shown before, it occurs several times in the Matsya Purāna and also in the Āśvalāyana Gṛihya Pariśiṣta (1.10) and the Nāṭyaśāstra (though in the latter two texts, not with reference to the images) and is not known so well to even other late Iconographic texts of Northern India (Vishnudh., Hayaśīrṣa). The ramifications of Tāla measurement (Uttamà, Adhama, Madhyama etc.) were quite unknown to the Northern texts. Hence we cannot be sure of its origin after the time of Varāhamihira. If the Āgamas were written prior to the Bṛihat Saṃhitā, the late origin of Tāla measure cannot be upheld.

A review of the measurements according to the Saura Kāṇḍa of the Hayaśīrṣa (Ch. 22) will be of interest to scholars. While describing the measurements of the limbs of

images of 10 Tāla measure, it says "Twelve Svāṅgulas will make a Bhāga and 2 such aṅgulas will make a Kalā or Golaka or Nétra. One third of the Nétra is the Tārā". Tāla is also mentioned here. The whole chapter gives the measurements of the images in terms of the above-mentioned measures. The 'mukha' or face of the image is herein enjoined to be 'Saptakalam' both in length and breadth (i.e. 14 Svāṅgulas). According to Nagnajit, as found in the Bṛihat Samhitā, the face should be of 16 aṅgulas. The Hayaśirṣa knows images of 5 to 10 Tālas. The Hayaśirṣa, as quoted in the Haribhaktivilāsa, also knows the term 'Golaka'.

The Samarāṅgana chapter (Ch. 74) on the measurements is hopelessly corrupt, but here, too, the terms 'Golaka', 'Tāraka' etc. are mentioned. The Ī-Ś-G-Paddhati (Part IV, p. 397) as well as the 'Atri Samhitā' is acquainted with many of these measurements. According to the former, 12 angulas is meant by 'mukha', 'Tāla' and 'vitasti'. Some of the Pratishṭhā works of Northern India (Vishṇudh., Hayaśirsa, several Purānas) were very similar to those of the south in the use of iconographic terminology and measurements. The composition of these texts may also be placed in the same age i e from the 9th to 11th century, though the traditions recorded must have been handed down from several centuries earlier.

The next classification was made on the basis of the positions or attitudes of the figures both in sculpture and in painting, known technically as the "sthānas". These have been fully discussed by many scholars with reference to the Vishnudharmottaram and the Śilparatna. Some more consideration is here made from the view point of the study of the Śilpasāstras. The positions may be classified into 4 classes—

(1) Nine, or 13 or 29 positions—such as Riju, Ardhariju etc.

(2) Positions such as 'Vaiṣnava, Samapāda' etc., numbering six or more.

(3) Positions mainly dealt with in South Indian texts viz. Sthānaka, Āsana and Śayāna.

(4) Some other positions, also known mostly to the Southern school—viz., Samabhaṅga, atibhaṅga, tribhaṅga and and ābhanga.

The Hayaśirṣa (Saurakāṇḍa, Ch. 23) says, "Images have been divided into 9 classes according as one is Riju, Ardhariju, Sāchikṛita, Chāyāgata, Sarva, Bhittika, Ardhabhitti, Kshipti or Parāvṛitta". The Samarāṅgaṇa chapter (Ch. 79) is full of corrupt readings but still the names may be read as follows:—Rijvāgata, Ardharijvāgata, Sāchikṛita, Ardhyārdhaksha, parāvṛitta of 4 kinds and Pārśvagata or Bhittika. Besides these nine, there are 20 intermediate ones—4 between Riju and Ardhariju, 3 between Ardhariju and Sāchikṛita, 2 between Ardhyāksha and Sāchikṛita, 1 between Ardhyāksha and parāvṛitta, and 10 between Rijvāgata, Parāvṛitta and Pārśvagata. Thus there were 29 positions according to the Samarāṅgaṇa. The Śilparatna refers to 5 main ones and then 4 kinds of Parāvṛitta. It further says that 'If these are mixed up, sthānas may be of various kinds". The Mānasollāsa (Pt. II, Ch. 1) refers to 5 main 'Sthānas' and then 4 kinds of Parāvṛitta=9, and then says that between these 9 sthānas there may be 'antaras' of 'aṣṭau aṣṭau' kinds (?) The Aparājitapracchā (Ch. 211) also refers to the 'sthānakas' numbering 4 main, 4 Aparāṅgmukha positions and then 4 varieties of Parāvṛitta. The Pārśvagata sthānaka is also mentioned therein. Some scholars believe that the thirteen positions mentioned in the Vishṇudharmmottara, with reference to vṛiddhi and kshaya were later interpolations. But the Samarāṅgaṇa shows that they might not be later insertions, but formed an original part of the Vishṇudharma. text. A comparison of the names of the sthānas as found in the different texts shows that the Hayaśirṣa and the Vishṇudharma. had not copied each other but must have taken these from some common source. The Nāṭyaśāstra (Ch. 13) also mentions such positions as Nata, Ardhārdha, Uttāna, Vaiśākha etc.

The positions mentioned in the third and fourth groups above, are known only to the southern texts. The Śayāna images are really very rare in North India. Besides the

Vishṇu image at Udayagiri (mentioned by Banerjee), we get a lying figure of a goddess with a baby near her lap, and the images of Gaṇeśa, Kārtikeya and a Śivaliṅga on the upper part apparently worshipping the female goddess. Many specimens of this have been found in Bengal (Vide—Cat. of Museum at Rajshahi of V. R. Society) but it has not yet been identified. Some scholars take it to represent the birth of Krishṇa, while others identify it with the Sadyojāta image of Śiva. The southern texts like the Ī-Ś-G-Paddhati also refers to the positions like Ṛjvāgata etc. while describing the images of Śiva. Other positions and attitudes are also known to the texts with reference to poses of the hands and eyes, which will be dealt with later on.

Two other classifications of citra deserve a mention. The Nārada Śilpa divides citra (in the widest sense) into Bhaumika, Kuḍyaka and Ūrddhvaka, with reference to their position in the house (P. Bagchi in J.O.S.I.A., Vol. VIII, June 1935). The Bhaumika citra meant decorations on the floor, which might be made by powdered or tinctured colours,' 'inlaying of the floor with coloured stones and gems". The decorations on the wall was called 'kuḍyaka' and that on the top of pillars, beams, ceilings is 'ūrddhvaka' citra". These classifications could be applied to painting as well as sculpture. Classification according to the nature of the ground will be incomplete if a few others are not considered. Paintings are referred to in Buddhistic literature to have been made on cloth, canvas, boards, mats, fans, boxes and walls of houses Paintings on canvas having the form of a scroll were known as paṭas, a variety of which was the Charana citra or Nakhacitra or Yamapaṭa or Gāzirpaṭa or Gājanapaṭa. From the Buddhistic period till the 8th century and even later, these Charaṇa citras have been mentioned in religious and literary texts. Paṭa is known in Bengal (specially Kālighat) even nowadays. The Charaṇa (meaning 'conduct' according to Coomaraswamy) citra consisted of pictures of happy and unhappy destinies of men after death according to their action in this life. They exhibited how the pious were enjoying in heaven or the

sinners were undergoing various punishments in hell in the presence of Yamarāja. Appropriate labels were attached to each picture. They were shown to the people in the form of portable galleries, along with songs. In the Siamese Buddhist text (Saratha Pakasini), these citras are said to be exhibited to the people by wandering Brahmins known as 'Nakhas'. Such paṭas were commonly shown along with explanatory songs in East Bengal fairs on the few last or the first days of the year.

The 'citraja' (painted) image of a god could be drawn, according to the Matsya. P. quoted in the Haribhakti-vilāsa, on Paṭa, Kudya and Pātra. 'Kuḍya' paintings of gods are the frescoes. Banerjee has referred to images of gods drawn on the water vessels at the time of religious ceremonies. It may be added here that such Pātraja images of gods are actually worshipped in Bengal. In East Bengal, the figure of goddess Lakshmī is very commonly drawn in colours on 'sarās' (hollow round earthen vessels) and worshipped on the Kojāgarī Purnimā night (just after the Durgāpujā) and preserved in the house for one year to be replaced in the next year. Other goddesses are also worshipped in form of such coloured paintings on earthen vessels. Paintings on pottery was a very common thing in India, the earliest being those discovered at Mohenjodaro and such other places.

The Mānasollāsa refers to a class of painting called 'Bhāvacitra' and explains it as 'a painting in which Rasas (such as Sṛingāra etc.) may at once be understood on seeing and which gives mental joy'. This class of painting is therefore nothing but an ordinary painting i.e. a citra proper. But the Mānasollāsa refers to it in opposition to a class of citra or mere sketch drawings 'which are drawn in hurry (Ākasmika) without any purpose and possess only an outline' (ākāra) (Ākasmika and anudiśya likhyaté). This class of painting is also called by the author as 'Aviddha' as distinct from 'Viddha' paintings which are the real citras which give a realistic representation. It is perhaps this 'aviddha' class of painting which according

to Raghavan is called 'Nālam' in the Śilparatnam which is also called 'Ākāramātrakam'. Thus Mānasollāsa classifies paintings into the 'Viddha' and 'Aviddha' ones, besides 'Rasa' and 'Dhuli' as already mentioned. The 'Nāla' kind of drawing is not found mentioned elsewhere, except the Śilparatnam. It may be that the Śilparatnam verse 'Nālamākāramātrakam' should be taken to mean that "Mere a form (outline) is not sufficient (na alam)" (for a citra) but the Rasas must be realised on mere seeing it", as the next line indicates.

The Vishnudharmmottaram contains a division of paintings into Satya, Vaiṇika, Nāgara and Miśra, which is not found in any other text and has raised a great discussion among scholars. The descriptions of these varieties given in the text do not help us in knowing their meanings and their origins (See Ch XV above). It may be suggested that they perhaps refer to the corresponding four classes of architecture which we notice in India in tracing the evolution of the Vāstuvidyā The 'Satya' class of painting perhaps corresponds to that form of architecture (art as a whole) which was known to Brahmā or Śiva who are regarded in the treatises as the originator of Vāstuvidyā. This therefore was the earliest form of Indian art Then came the Viśvakarmā school of architecture which is the same as the Vainika painting, because Viśvakarmā had introduced all the art of construction on the orders of Brahmā through king Prithu, son of Vena (See Samarāṅgaṇa, Ch. 1 to 3). The word 'Vainika' may thus have some relation with the word 'Vena' and not 'veṇu' (a reed pipe). The Viśvakarmā school of Vāstuvidyā has been shown by me to have developed into the 'Nāgara' school under the influence of Nāgas. Similarly, Vaiṇika painting might have developed into the 'Nāgara' one. My contention that the Nāgara school of architecture (and painting too) arose after Garga learnt it from Nāga Śeṣa, is corroborated by a tradition recorded by Tārānātha, the Tibetan historian, to the effect that there was a Nāga school of art in the time of Nāgārjuna. Thus we may say that the 'Satya' class of painting refers to the

earliest period (as the 'satya' yuga) and the Vaiṇika class was the next one when the Viśvakarmā (Vaiṇya's or Vaiṇika's) school prevailed in India. The Nāgara school of architecture and painting was that introduced by Garga and the Nāgas. The Vishṇu. Dharm. descriptions of the four schools do not reveal any vital difference between them, except in the shape of the frame. I have already shown how the South Indian architectural texts took the Nāgara, Drāviḍa and Vesara styles of temples to be differing only in their shape. I, therefore, concluded that those later texts did not realise the real points of difference among the three orders of Indian architecture. I find Raghavan (Hist. Quarterly, 1933, No. 4, p. 898) also realised it when he says that "the exact import of these terms (Satya, Vainika etc.) was perhaps not clear even to the author of the Vish. Dharm.". A probable meaning of these classes of painting is therefore suggested here. It is also not unlikely that the word 'Vaiṇika' here is mistakenly written for some other word.

In this connection, the history of Buddhist art as related by Tārānātha, the Tibetan historian, may be of interest. Very few Buddhist work on iconography have yet been discovered or printed. The 'Pratimāmānalakshaṇam' is one amongst them. It is said in the text that it was based on an earlier work named 'Ātreyatilakam'. The Agni Purāṇa refers to a Pañcharātra text called the 'Ātreya'. We have already summarised a work of Atri, the Atri Saṃhitā. We have no other means of knowing the character of the Ātreyatilaka, but the Pratimāmānalakshaṇam shows that the Ātreyatilaka like the former was not a purely Buddhistic work. The style of writing and injunctions in Pratimāmānalakshaṇa show that it was very similar to the Hindu iconographic treatises. This further indicates that the Buddhists also followed the Hindu system in the creation of their art, the injunctions in the Hindu Śilpaśāstras being equally followed by all the sects of India.

Tārānātha refers to three early styles of Indian art—the Deva, the Yaksha and the Nāga. The Deva style was

practised in Magadha upto 3rd century B.C. The Yaksha style was associated with Asoka upto the 1st century B.C. The Nāga style was practised in the time of Nāgārjuna by the Nāga artisans. All these styles are said to have deceived men by their reality. It may be suggested that these three classes of art correspond to the Satya, Vaiṇika and Nāgara styles of painting. According to Tārānātha, these styles gradually disappeared and gave rise to three new styles—similar to the three early ones respectively. He mentions the last of them to be the Eastern school of Varendra under Dharmapāla (king of Bengal).

§11. Symbolism in Indian Art

Indian architecture, sculpture and painting may be divided into secular and religious Religious art is as mystic as the Indian religion itself. In the chapters on architecture it has been shown that symbolism played a great part in that branch of Indian art. The temple was not only the home, but also the body of the god installed therein (of Purusha, the Absolute) and the symbol or vikāra of the supreme soul. This concept had a great effect on the construction of the temple (See Ch. XXII). Similarly, the icons worshipped by Indians was not a mere stone or piece of wood, but the 'Vikṛita' (transformed) form of the supereme Invisible soul, which reveals, of his own will, to men who cannot apprehend the invisible condition (V. Dharm., Ch. 46). "That form of His is full of significance". The image, before being worshipped, is sanctified by several rites which invoke life into it. First, the eyes are opened (Cakṣūnmīlan) and then life is installed inside (Prāṇapratiṣthā). Then the image becomes god himself. "Pratimā is Purusha" (Agni P., Ch. 56); but as the supreme soul consists of both the Purusha and the Prakṛiti, Purusha alone cannot exist anywhere. So it is said that all images must have its Piṇḍikā or Pīṭha (pedestal) for, "the Piṇḍikā is Prakṛiti (or Lakshmī) herself" and hence "their conjoining (yoga) according to rules is the Pratiṣṭhā" (Agni Purāṇa and Hayaśirṣa quoted in the Haribhaktivilāsa).

"The best of the Karmayoga is the installation of an image" (Mat. P., Ch. 258). "Image-making is for full siddhi (complete realisation) of Dhyānayoga" (Śukranītisāra, Ch. 4, Sec. 4). Hence the image is the outward symbol of the 'Dhyānamantra' which consists of anthropomorphic description of the god of the Mantra. The form of the image cannot, therefore, be whatever the worshipper likes, but must conform to the Mantra. "Some men think that, that image is beautiful to which one's mind is attracted. But, to the learned, that which is not according to the śāstric measurements is not beautiful". "Whatever is found in the Dhyāna (mantra) should be made" (Nārada quoted in the Haribhakti). Only then can life be infused in the image. The gods come nearer to the image (i.e. enters) (Sāndidhyam āgacchanti) which is really beautiful—in "having all marks (Lakṣaṇa, as indicated in the Dhyānamantra), beautiful limbs, requisite ornaments, and ideas (bhāva) expressed in the face and limbs" (Haya. Pañch., Saura Kāṇḍa Ch. 25 and also quoted in Haribhakti). Hence an "image made by one not knowing the śāstra, or made with some defect (Doṣa) by a Śilpin should not be accepted by one who knows the śāstra, even if the image has sweetness (mādhurya)" (Samar. S., Ch. 78). "If even without knowing or through ignorance, the image is not made to conform with the prescribed rules, the Pratimā is fruitless and its worship is without any effect" (Gautamiya Tantra quoted in Haribhakti). "Images complete with all limbs, as prescribed, are givers of merit (Puṇya) and also charm the mind. Otherwise, they destroy span of life and wealth and increase sorrow. Auspicious images help to attain heaven" (Śukranīti).

The above mentioned texts, therefore, give us a clear idea about the conception of the Indians about the beauty of the image and its worship. It is, therefore, obvious that the images were merely symbols of the god, the outward form of the Mantras. Every limb of the main image, all accompaniments like the vāhana or attendants, the implements in the hands, the pedestal and the halo as well as

the colour, size and proportions of the different parts are significant and full of underlying mystic symbolism. The Vish. Dharm. in describing the iconography of the various images explains many such significances of their various features. Colour symbolism underlies all the images; the Sāttvika, Rājasika and Tāmasika aspects of the gods being expressed by white, red and black colours respectively. That colour expresses the quality of the god or goddess was known in India from a very early period. It has already been mentioned that a Jataka story in describing the goddess of ill-luck (Kālakanni) imparts to her dark colour, dark cloth and dark ornaments and jewells. The sentiments (Rasas) expressed by the images were manifested by respective colours—the erotic (Śriṅgāra Rasa) was of Śyāma hue, the laugh-exciting (Hāsyarasa) of white colour, the pathetic (Karuna Rasa) of grey colour, the furious (Rudra Rasa) of red colour, the heroic (Vīra Rasa) of yellowish white, the fearful (Bhayānaka) of black colour, the supernatural and amazing (Vismaya Rasa) of yellow colour and the repulsive (Vībhatsa) of blue colour (Nāṭyaśāstra, Ch. VI, quoted by Kramrisch). The Buddhist canons in many places prohibited the use of the blue colour in the cloths, which shows the antiquity of the acquaintance of Indians with the significance of different colours. Mysticism is further intensified in the worship of the symbols of images such as the Śivalingam, the Yoni, Maṇḍalas and the Yantras.

The symbolism of images perhaps arose out of the symbols which were used in the sacrifices (Yajñas) in the Vedic period, and also in the periods when symbols and images were worshipped side by side, as at Mahenjodaro and Harappa. Worship of symbols together with images continued in India for a long time (the Liṅga, Śālagrāma, the Yantra worship and the like) afterwards. When images were created, they were done in a way which preserved the symbols held sacred in earlier days. Banerjee has shown how mere symbols of gods were often placed on seals and coins instead of their images. Symbolic interpretation of the forms of the higher beings appears to be as old as the

time of the Buddha. Thus a Theragāthā (No. CCXLVII) interprets the various limbs of the Buddha as an elephant (cf—'Gajatame' of the Dhauli edict of Asoka) in the following way:—The elephant's four feet are mercifulness, sobriety, intelligence and mindfulness. Its trunk is confidence, tusks are equanimity. Its throat is awareness; head is insight. The trunk is the instrument of weighing good and bad. Its tail was detachment".

With the rise of the popularity of image-worship earlier symbols of gods were often placed on the hands of the images, and often they were made the vehicles of the gods. Of course many of the implements in the hands of images signify their various qualities, as is evident from the explanations given in the Vish. Dharm.

The importance of symbolism of the images also explains the origin of the multifaced and multihanded icons. Macdonell held that this arose out of the necessity of the sculptors in order to distinguish the image of one deity from that of the other, when the placing of different vāhanas was found inadequate for the purpose. But his opinion has not been accepted by many scholars (Banerjee, pp. 81 ff). Some of the grounds to refute the theory of Macdonell may be noted below.

(1) Even the Vedic Mantras while anthropomorphically describing the gods, sometimes attributed many hands, legs, feet and heads to them. Thus Agni had 4 horns, 3 legs, 7 hands, 2 heads etc.

(2) Multiheaded images have been discovered even among the remains of the Indus Valley culture.

(3) Two hands were possessed by many gods and goddesses even when there were no demarcating features in the vāhanas, such as the images of Gauri and Lakshmī. Same vāhana sometimes was possessed by different gods with same number of hands, the implements forming the demarcating features (such as the Grahas).

(4) Four-handed images are found as early as the time of Huvishka (2nd century A.D.). This shows the origin of such images in an earlier period.

(5) Macdonell's theory does not explain why only the hands, and not heads or vāhanas etc were increased in number The texts always gave more importance to the hands and implements therein than on vāhanas Many texts do not at all refer to the vāhanas Thus the multiplicity of the hands of images was not done for the purpose of differentiation of the images but was the result of deeper reasons This might have been due to the injunction that a citra (image or painting) should be similar to the real As gods were real to the worshippers, their images could be shown to be similar only to superhuman beings Thus multiplicity of hands might have been regarded as indicating that divine character The multiplicity of hands was regarded as the best method for doing it If other limbs (say, the heads) were increased in number, the images would have been more monstrous in appearance Some unusual elements were also perhaps necessary to make the images of gods free from their human sensual appeal, especially in case of naked female deities with high breasts and big hips and thus to distinguish them from such secular images (as in Mathura Sculpture) Possibility of images exciting passion has to be admitted, as the Arthasastra (Translation, p 296) lays down punishments for having sexual connection with images Thus images of gods had to be made in a way that they might look divine The Brahmayamala Tantra, therefore, classified the images into Divyadhika, Divya and Divyādivya The Nātyaśastra (13 27) also refers to the nature of gods as 'Divya' The superhuman character of gods' images is also evident from the fact that the iconographic texts have attributed only two hands to the figures of sages and epic heroes Even the images of Krishna and other members of his family in their human forms are not endowed with more than two hands In some cases, this multiplicity may also be explained by the fact that the deity is shown as fighting with some demons and fighting with many weapons in hands (Śiva's or Devī's fights with demons) The Nātyaśāstra (13 50) says that "Many faces and hands with various implements,

a fat body and a tall figure indicate the Raudra Rasa". Hence deities expressing this Rasa should naturally be figured with multiple hands or faces. Joint images like those of Hari-Hara, Ardhanārīśvara or Mārtaṇḍa Bhairava naturally were attributed many hands because of adding together the hands of the image of the individual gods united together. The Viśvarūpa form of Vishṇu naturally possesses many hands and faces due to the very nature of the god as described in the Gītā. The forms of many gods thus arose out of their descriptions in the religious texts, in their legends or the Mantras. The iconographic texts did not arise out of the images created by the artists. Hence it cannot be said that the necessity of the artists contributed to the forms of the images. If the image-makers failed to give proper form to their sculptures, they should take help from painting or they should do according to their capacity (Vis. Dhar., p. 108; Kramrisch, 2nd Edition). The artists were not free to give a new form to the image by increasing or decreasing the number of hands of the images. The forms of many images discovered nowadays do not tally with the available texts, not because they were the original creations of the artists, but due to the fact that many Dhyāna mantras are now lost to us. The Śukranītisāra (Ch. IV, Verses 137½-141) contains some rules about the method of adding many hands and faces to the images. In fact the Śukranītisāra clearly lays down the method of distinguishing one god from the other by saying "By the differentiation of names and of the vehicles and implements etc., (svasaṃyogas) that one may know the difference of colour etc. of all or individual gods" (Verse 151). Moreover, four hands of a god was so universally known that the Śukranīti says "where the form of the god is not clearly stated, it must be four-handed" (Verse 136).

§12. Effect of Vāstuśāstra on Art

This takes us to the question of the freedom of the Indian artists in creation of art objects and how far the Vāstu-

vidyā brought on decadence of Indian art by making it artificial or conventional. It may be said, in short, that in spite of these injunctions in the texts, the artists had much freedom; they could do 'Yathāruci' (according to taste) or 'Yathāśobham' (according as will be befitting) and according to their intellect. But even as a great writer has generally to follow the principles of grammar, so had the Indian artists to observe the main rules of the citra-śāstras. They had immense freedom in the field of technique, execution and other matters; but the form of god's images must have to conform to the Dhyānas of gods as found in the Purāṇas, Āgamas or Tantras. In fact, the Śilpaśāstras lay down rules only in certain matters, indicating the auspiciousness or otherwise of certain forms—in technical matters every freedom was left to the artists. In secular art, the artists enjoyed greater freedom than in religious art. Even when the śilpa texts had become stereotyped, the writers said that they were "describing the methods for the benefit of the ignorant" (Śilparatna) and not for the genius. That the śilpa texts were not really responsible for the decline of Indian art is evident from the fact that these texts arose in India long before the sixth century A.D., and even then and afterwards India produced classical sculptures of the Gupta period, those of Mamallapuram, Ellora, Bhuvaneśvara, Khajuraho and so on. The Eastern art of the Pālas arose in spite of the śilpa texts. As even the grammar of Pāṇini or Patañjali could not retard the progress of sanskrit literature, so the grammar of the fine arts could not possibly stand on the way of the artists. The religious art became slaves to the texts and became artificial from the 9th and 10th century; but their artistic quality deteriorated not because of these texts, but due to want of master artists. The Śilpaśāstras only laid down the general principles of Indian art which differentiate it from that of other countries. A discussion of these principles of the Śilpaśāstras will convince us that they could not have contributed to the decadence of Indian art.

§13. Principles of Sculpture and Painting

The very first general rule pertains to the question of making an image beautiful so as to attract god inside it; or in other wards, what is a beautiful image? Almost all the śilpa texts deal with this matter. According to the Matsya Purāṇa (Ch. 258-59) no image should be "Adhikāṅga" (i.e. possessing more or greater limbs and sizes) or "Hīnāṅga" (devoid of any limb, or shorter sizes), of terrific look, thin or thin-bellied, wanting in flesh, possessing crooked nose, short-faced or having thin arms, thighs and legs. The Bṛihat Saṃhitā lays down that images must possess all required marks or characteristics (Lakṣana) and their size should be as prescribed. The rules regarding shortness or other defects of their limbs are also repeated herein. The figure should not be bent and its look must be in front. This indicates that the Bṛihat Saṃhitā prescribes only frontal view of images. The Hayaśīrṣa (Saura Kāṇḍa) lays down rules for making images out of good stones, because gods come nearer to the stainless stones. The image should have a good face and good cheeks, must look happy and must possess beautiful look, good arms and hands and a big chest. The technical process of making the image brilliant was to rob it with oil, hair or diamond and then to besmear it with vermillion. A kind of Vajraélpa was then to be applied so that it might look like a mirror and last long. None of the limbs should be crooked (vakra). The image must have all lakṣaṇas, beautiful limbs and ornaments, and must express some bhāva (ideas as expressed by different Rasas). Like the Agni Purāṇa in case of the Liṅga, and the Hayaśīrṣa (quoted in Haribhaktivilāsa) in case of Viṣṇu, the Saura Kāṇḍa also opines that installation of the image on the pedestal (Piṇḍikā) is the union of the Sun-god with his consort Rājñī. The Hayaśīrṣa, as quoted in the Haribhaktivilāsa enjoins that the smile, eyes and decorations of the images should be as found among men in that country (Déśānurūpa). The lépya (earthen) and Paṭa (on canvas) citras also should have

Kānti (marks of beauty), decoration and bhāva. All the texts prescribe the sizes of images and relate the efficacy of the various sizes and dangers of having abnormal size.

The Vishṇudharmmottaram regulations are equally applicable to sculptures and paintings. The eyes of the figures (images or other ones), their expressions, limbs and hands have to be treated as in dance (Ch. 35). Size and form of human beings should be according to general rules of classification of men and women of 5 classes each, which is also found in the Bṛihat Saṃhitā (Strī-puruṣa lakṣaṇa) and the Kāmasūtra. This rule is also found in the Samarāngana and the Aparājitapracchā. The gods should be like youths of sixteen. The eyes and looks should be, as found in the Matsya Purāṇa. "Even when invoked by best of Brahmins, gods never enters images short of enjoined measurements and devoid of the marks". All kinds of pictures or sculptures were not fit for residential houses. "Pictures to embellish homes should belong to Śṛingāra, Hāsya and Śānta Rasas; the rest should never be used in the house of anyone. But all the Rasas may be represented in the assembly houses of rulers and houses of gods (temples)". This rule is also found in many other texts. Equally applicable to a figure sculpture or a painting was the rule to the effect that "Improper juxtaposition of colours, figures which are inexpressive, or have not proper position (poses), are devoid of any Rasa, empty to look at, devoid of life movement and having defective limbs are unfit for a citra" (painting and sculpture both). "Proper position, proportion and spacing, gracefulness and resemblance are good qualities of a citra. One that seems as if dancing by its posture, or appears to look freightened, laughing or graceful, thereby appears as if endowed with life, as if breathing —these are the figures of the auspicious type".

The Vis. Dhar. further lays down some rules which are applicable to paintings only. Among these are the rules regarding the representation of the back view of figures, colours, brushes, methods of producing light and shade. Sweetness, variety, well-prepared background (Bhūlamba),

proportionateness, similarity to what is seen (Sadṛiśya) and minute execution are the other good qualities of paint-ing. A good painting is one which can be appreciated by every class of people. "The masters praise the Rekhā (deli-neation and articulation of forms), the connoisseurs praise the display of light and shade, women like the display of ornaments, the rest of the public like richness of colour". Action and life are to be properly indicated in painting. He knows citra who represents "the dead devoid of life-movement and the sleeping possessed of it".

The Śukranītisāra also contains rules similar to those in other texts. According to it "That image is beautiful which is neither short nor exceeds the measurements". An image should possess all the limbs so that it may give merit as well as pleasure of mind. But a later date of this work is apparant from several rules prohibiting secular artis-tic productions. "Divya (divine) images not even having the required marks is good for men, but not those of the earth (martya—secular) even if with porper characteristics". Several other injunctions are also noteworthy. "Images should look as if of 16 years of age, should be without beards, wearing divine ornaments and garments and should have divine colours". A new rule is to the effect that in case of lekhya (painted) or lepya (clay modelled) images and those made of sand or pishṭa materials, absence of the required marks (Lakṣana) is not to be blamed.

The Samarāngaṇa, essentially a non-religious work still possesses a chapter on iconography, in addition to that on architecture, sculpture and painting. It, like the Vishṇu-dharm. refers to many non-religious subjects of painting and sculpture. The different results of the use of different materials are described as in the early texts A full chapter is devoted to the 'doṣa' (defects) or 'guṇa' (good qualities) of images. Hence images defective in the light of the śāstras are enjoined to be discarded, even if they are sweet (Madhura). Images with joints not well attached, with limbs misplaced, crooked, stooping, shaking, too high or having short limbs or fearful in looks should be avoided.

Figures of men and women should be according to the well-known five divisions each of men and women (as in Vish. Dhar.). The figures should possess 'bhāva' (expression of Rasas) and action, and look life-like. Hence the work deals in detail with the rules of the Rasas, Driṣṭis (looks) and Mudrās (poses of hands) which make a figure full of life. Rules of painting—both its artistic and technical aspects—are elaborately dealt with threrein and may be compared with those in the Vishṇudharmottaram

It has been already pointed out that the Buddhists also followed the Hindu principles of image-making. This might be due to the fact that the artists or sculptors were mostly Hindus, and naturally were afraid of breaking the rules laid down in their own scriptures. That this was also the case as regards architecture has been already mentioned (Ch. XXVIII). Hence we find the Buddhist manual on iconography—the 'Pratimāmānalaksanam' being based on the Hindu Śilpaśāstra, the Ātréyatilakam. This Buddhist text also lays down same principles as the Hindu ones. The measurements of images should be as laid down in the texts. "The head of the family dies, if the face of the image is not made according to the śāstric injunctions". "There is no place (in art) of faces which look malicious, passionate, wrathful and bitter; they should be shunned from a distance". Merits and demerits of images according to their big or small size or other features are described as in the Hindu texts. "Their eyes should not be turned to right or left or downwards" as we find in the other works. Sunken belly, shortness of nose, eyes or fingers were to be avoided. The defects are said to produce various evil effects. The artists were given some freedom in the size of the eyes, breasts and hips of female figures, "for, then it will be more pleasing to the eye". The Daśatāla measure was to be applied only in case of images of Brahmā, Charcikā, Rishis and Buddhas, and in 'no image of others'. Rules regarding broken or burnt images are also related as in the Hindu works.

The Mayamatam, as printed, does not contain the chapters on images; but sill some principles may be gathered

from the book. In chapter 18th, we get an injunction regarding the objects that could or could not be depicted or displayed on structures. "In the houses of higher castes should be made representations of auspicious kathās (legends or stories) or those showing action or respect, or engaged in dance. Scenes of war, death, sorrow, legends of Devas and asuras, naked persons and līlā or sports of hermits should not be applied therein (Verses 110-111—See chapter on 'The Mithuna in Indian Art'). In the chapter on the 'Liṅgas' are noticed rules similar to those found in other S. Indian texts. The Liṅgas are divided, according to their shape, into Nāgara, Drāviḍa and the Vesara classes. Rules for selection of stones and other materials, the plumb-lines, the sizes are also laid down. Methods for the preparation of the 'Kalka' (decoctions for preparation of clay etc.) and the 'Vandhodaka' are also met with in the book.

The Atri Samhitā lays down rules for the selection of good stones or woods for images. Rules about the colours of the different gods are dealt with in detail. We also notice here the various measurements, including the Daśatāla, but not the uttama, madhyama or adhama divisions of the tālas. The Vaikhānasa Āgama of Marici deals with many varieties of the tāla measures and rules about collection of stones etc.

The Iśāna-Ś-G-Paddhati, though a compilation, also contains many new rules and regulations. It lays down the significance of installation of images as in the Agni Purāṇa noted before. "Installation (Pratiṣṭhā) of the Liṅga is the union of the Pīṭha with the 'Liṅga'. This idea perhaps is responsible for the present day belief that the Pīṭha of the Śivaliṅga represents the Yoni, though Banerjee has shown that the Śivaliṅga is now a conventionalised form of the Phallus and the Pīṭha is not the Yoni. The Ī-Ś-G-P. contains some interesting rules regarding the Mukhaliṅgas. A liṅga with one face should be set up in villages, with two faces on hills or near the border of an enemy country (for this is allowed only for the purpose of Abhicāra), with three faces in temples with one door, with four faces in temples

having four doors, and with five faces on hills or on border for destruction of enemies (as in case of two-faced Liṅgas). The various measurements with the three forms of Daśatāla measure are described in detail. The Sthānas or positions of gods are mentioned in the descriptions of the gods. Like the Mayamatam it says that on the walls of the temples there should be Citras (full figures) and Citrataras (i.e. ardha-citra) depicting stories from Āgamas and Purāṇas about the gods. They should be coloured, neither too many nor too few in number. They would be with their proper forms and endowed with Rasa, Bhāva and Kṛiyā. These verses give us an idea of not only images in the round but also of the bas-reliefs on temples.

The Mānasollāsa (Part I) lays down some rules for image-making and casting of metal images. The images, according to it, "should be complete in all the limbs, a little fat, looking gentle, possessed of prescribed implements and hands". It contains many rules regarding paintings. The qualities required by a good 'citrakara' indicate the essentials of a good painting. They may be said to be "thin lines, construction according to rules, being inlaid with colours, and indicating various Rasas". Preparation of the ground of painting, rules for the brushes, colours, the various positions, measurements according to the tāla measure and iconography of various images are described in the book as in the Vishṇu. Dharm. or the Samarāngaṇa.

The Kāśyapaśilpa deals with images of gods in greater details than the other works. Position of the Parivāra Devatās (attendant deities) around the main temple forms an important chapter in this work as in ther other Āgamas. Merits and demerits of various forms of the Liṅgas and Pīṭhas are described in details. Selection of materials, stone or wood, was to be made according to the regulations as in other texts. The tāla measures with all its varieties are also dealt with. Rules about the Śūla, Rajjubandha and preparation of the clay (for Lépya images) and Kalkas are to be noticed. 'Colours' is dealt with in three chapters. This book deals more with the technical aspects

than with æsthetic or religious injunctions. Nothing is known about other sculptures and painting.

The Mānasāra attaches more importance to architecture than to sculpture or painting. Very few gods, including the Śaktis, Jain and Buddhist images are treated in the work. The rules of measurement are said therein to be of 12 kinds varying in proportion to 12 matters, while other texts refer to 11 such ones. Only the varieties of the Ten tāla measure are known to it.

The Śilparatna, the latest of the texts contains greater details about painting and iconography than the other works. It can be compared with the Vishṇu. Dharm. and the Samarāngaṇa. In the rules about the materials and the colours, the author gives more freedom to the artists by saying that they should be reasonable (Yathā Yukti) and befitting (Yathaśobham). Subjects to be depicted in painting or sculpture or those prohibited are also mentioned herein. The rules about Citras and Citrataras are exactly the same, perhaps copied from, as those in the Ī-Ś-G-D-Paddhati. Citras are productive of good or bad results as they do or do not conform to the rules. The subjects of painting may be Devas, men, objects of nature, animals, and anything that can be ascertained by the ears, eyes or the mind; that is, paintings might be of things seen or memory pictures or imaginary ones. After dealing with the various possible positions and postures, the author says that "an intelligent artist shall ascertain in his mind the befitting positions of different figures and then impart to them the Bhāva (expression of Rasa) and action (Vyāpāra). It divides Citra ((painting) into three classes—Citra, Dhuli Citra and Rasa Citra—the former referring to permanent paintings depicting Rasas, what is known as Bhāva Citra in the Mānasollāsa. Dhuli and Rasa Citras are less permanent, being made of powdered colours or colours mixed in liquids. The texts herein appear to be somewhat corrupt, as the editor notices the loss of one line in some of the Mss. As in other texts, this work also says that a citra must look real (or having semblance of reality) and

be such that the Rasas expressed therein may be realised as soon as seen. The second part of the book deals with iconography and rules of image-making. The treatment is in great detail Some methods of casting images, preparation of clay for images, measurements, the Śūla and Rajju-bandha and such matters as dealt with in other books are also found here. The book mainly deals with the iconography of the 18 kinds of Śiva images, but alo devotes several chapters to images of other sects Defects of images, effects of colours and other auspicious and inauspicious features of images are described in details Rules regarding broken or burnt images are also laid down.

The foregoing summary of the rules and regulations regarding sculptures and painting will show that religious art was to be executed with a view to make it not only beautiful, but also propitious to the artist and the owner and as durable as possible. The figures must be proportionate, pleasant looking, without any defect in the limbs, well decorated and complete with their implements and the vehicles (Vāhanas). Then only will the God (whose image is intended) enter the icon and shower dharma, artha, kāma and moksha to the worshipper. All figures (in painting or sculpture) must not only be 'sundara' (beautiful) but also 'Satya' (real i.e. conforming to the form as known to the artist or to a devotee to whom god had revealed himself, and who described him in the dhyāna mantra) and Śivam (auspicious) Secular sculptures and paintings must also be such as will please the mind and eye of everybody and appreciated by all classes of men. Such an art production can remove sorrow and passion and carb the vanity of beauty even of the angels The injunctions of the Śilpaśāstras therefore not only dealt with the general rules of religious nature, but also other technical matters which may be said to form the essentials of Indian painting and sculpture.

§14. Essentials of Indian Art

These essential rules are found very succinctly described in three works. They reveal the ultimate aim, the essential

features, and also the method of attaining them. Of these, the most well known is the "Six limbs (Shaḍaṅga) of Citra" described by Yasodhara in his commentary on the Kāmasūtra of Vātsyāyana. Another is found in the Vish. Dharm. (III. 43. 18-19). The third text is found in the Samarāṅgaṇa. These rules have been taken by scholars to refer to painting only and have not been explained with reference to sculptures. It is, therefore, necessary to expose the significance of these rules regarding their applicability to all kinds of artistic productions of India.

Abanindra Nath Tagore who first drew the attention of scholars to the "Six Limbs" in Yasodhara's commentary explained the verses in the subjective sense. But Coomaraswamy correctly pointed out that "they can be far better understood in a purely practical sense". H. Mitra while interpreting them in detail divided these six limbs into two groups:—"one appertaining to the theory and the aim and the other to the technical method of making the representation life-like". But in fact all these are inseparably connected with a citra and all these refer to also the method of attaining the aim. Without these no citra is perfect, and hence the artist must know how to attach these limbs to a citra. The Samarāṅgaṇa regulations make this quite clear.

As these verses were translated by scholars with a view to explain them with reference to painting only, a literal translation of them is necessary to understand their applicability to other productions of art-sculpture, images etc.

(1) The "Six Limbs:—"Differences of forms (Rūpabheda), measurements (Pramānāni), furnishing moods (Bhāva-yojanā which produces Rasas), furnishing beauty (Lāvaṇya-yojanā), resemblance (to reality—Sadṛiśya) and differentiation of colours (Varṇikā-bhaṅga)—Citra is thus six-limbed".

(2) Viṣṇudharmmottara 43.18.19:—

"(Proper) placing (Position and Sthāna or Sthānāka), proper size (Pramāṇām), position on the grounds (Bhūlambha), sweetness (Madhuratva), distinctness (differentiation

or articulation—Vibhaktatā), resemblance (Sādṛiśya), decrease (Kshaya) and Vṛiddhi (increase)—these are the eight qualities (of a Citra)" ['Sthāna' here perhaps does not mean 'proper place' or 'base', but has a technical meaning viz. 'Postures'. Sthānaka or Sthāna has been used in this sense in all the texts. These Sthānas are Rijvāgata, Ardharṛiju etc. as related already. The word 'Bhūlambha' has been translated as 'spacing', but the word is used with reference to sculputre also. Hence it may be translated so as to give a wider meaning].

(3) Samarāṅgaṇa Sūtradhāra, Ch. 71, Verses 13-15:—

"The 'aṅgas' of that (Citranyāsa) are related here. The first of that is Vartıkā (brush), second is Bhūmibandha (preparation of the ground), Lekhya (?) (perhaps shall be 'Lépya'; as the next topic discussed in the book (Ch. 73) is 'Lépyakarma—preparation of the clay or plaster—for coating on the ground) is the third, the fourth is 'Rekhākarma' (drawing the line), the fifth is 'Varṇakarma' (colouring), the sixth is Vartanākrama (the real execution of the work by proper modelling or by light and shade in case of painting). The seventh and the eighth are difficult to describe due to corrupt reading. The seventh is said to be 'Lekhakaranam' which is difficult to be distinguished from 'Rekhākarma', the fourth one already mentioned. The seventh and eighth limbs might, therefore, refer to imparting of beauty and Bhāva by indicating the postures and Rasa through the position of the hands and look, as described in later chapters of the book and also as indicated by other verses mentioned below (No. 4).

(4) Samarāṅgana, Ch. 71, Verses 2-5:—

"Now will be related what should be (*i*) "Vartayaḥ" (brushes), (*ii*) Kṛitabandha (preparation of the ground), (*iii*) Lekhāmāna (size and measurements of the lines), (*iv*) Varṇavyatikrama (variations in colour), (*v*) Vartanākrama (modelling etc.), (*vi*) rules of Māna and Unmāna (measurements of length, breadth and height), (*vii*) rules of the nine Sthānas (postures) as well as juxtaposition of the hands (Hasta Vinyāsa) and (*viii*) size of various features

(Ākṛtimāna) and imparting of proper form or beauty (Rūpa Vinyāsa).

(On comparing no. 3 and 4 above, we find how the various factors are almost the same in the two lists. The 3rd and 4th lists, however, mention not only the qualities of a painting but also the methods by which those may be attained).

Each of the essential factors, as related in the three works above mentioned, may now be discussed. The 'Rūpabheda' in the first list corresponds to 'Sthāna' etc. and Vibhaktatā of the second and 'Rūpa Vinyāsa' including postures etc. of the fourth list. It refers to differentiation of the forms or types (Coomaraswamy) of each figure. Here 'Rūpa' cannot be taken in the sense of 'Beauty', for 'Lāvaṇya' (or beauty) is mentioned separately as one of the limbs.

All figures in an artistic production must possess their characteristic features. Hence the Śilpla texts (V.D., Ch. 42 on Rūpa Nirmāṇa) invariably describe how figures of men and women are to conform to those of five types of men and women; what forms will the figures of kings, people of different countries, sages and gods etc. have in a citra, so that there may be sādṛiśya. This rule therefore is applicable not only to painting but also to sculpture or iconography. Hence in the religious books iconographic features of the gods are known as 'Rūpabheda' of the gods. It will be, therefore, clear that all the six (or eight) qualities of a painting are equally necessary for sculptures and images of gods.

The second limb is 'Pramāna' in the first and the second lists and 'māna' and 'unmāna' in the third one. Measurements must be proper for maintenance of symmetry and proportion. It is therefore described in details in the works on architecture, painting and iconography. It has been shown how stress has been given in all the texts on this matter and how deviations from the prescribed injunctions have been cursed. It is therefore one of the essential features of Indian painting and sculpture.

The third essential factors of a citra in the first list is

"Bhāva Yojanā" i.e. imparting of Bhāva (mood expressing action and mood) to the figures. Its corresponding factor is not clear in the second, and the third lists. But it may be said that it is the same as 'Sthāna' (position and postures) of the second list, and Sthāna, Rasa and position of hands and eyes as described in the Samarāṅgaṇa (as noted in no. 3 above). The reason for believing this is that according to the texts, "It is by Rasa and Dṛiṣṭi that Bhāva can be expressed" (Samarāṅgaṇa, Ch. 82). The Nāṭyaśāstra (Ch. 14.34) also says that "Bhāva is indicated by Dṛiṣṭi, and then Vibhāva (i.e. what produces a bhāva) is done by the limbs. Hence 'Bhāva' and 'Rasa' really lie in the Dṛiṣṭi (looks)" Bhāva and Rasa are interrelated. It is therefore clear that Bhāvayojanā of Yasodhara is the same as 'the Sthānas' of Vish. Dharm. (for they indicate action) and Rasa, Dṛiṣṭi and Mudrās of the Samarāṅgaṇa. Bhāvayojanā, in fact, is the real characteristic of Indian sculpture and painting. The texts on iconography also enjoin that "all images shall be possessed of Rasa, Bhāva and Kṛiyā". Hence 'Bhāva' is an essential feature of Indian sculpture and painting.

The fourth factor viz. 'Lāvaṇya Yojanā' of the first list means imparting 'beauty' to the figures. Mitra quotes a text to the effect that 'Lāvaṇya' is 'like the rushing of waves of beauty over the limbs'. It reminds us of the 'Lāvaṇya' of Umā (Kumār Sambhava, Canto 1) which was rolling down like oil over the limbs. Lāvaṇya is 'Madhuratva' of Vish. Dharm. and is included in 'creation of Rasa' and 'Rūpa-vinyāsa' of the 4th list. The Vish. Dharm. also says that a "painting which has not the proper position (Sthāna) or the Rasas, are empty to look at, and devoid of life-movement (Cetanā) is said to be inexpressive". Lāvaṇya, therefore, is possible only in a figure which expresses some 'Rasa' through its limbs such as eyes etc. The texts on iconography also enjoin the images to be 'Madhura' (Sweet). Thus 'Lāvaṇya' is an essential limb of Indian sculpture and painting.

The fifth 'limb' is 'Sādriśya' of the 1st and the 2nd lists. The 3rd and 4th lists do not naturally refer to it directly, but relate all the methods by which a figure may look life-

like or real. The Samarāṅgaṇa, therefore, describes how the various objects of art—men, birds, animals, Gods etc. are to be depicted with their proper forms. This is also done by the Vish. Dharm. with the object of making the visible things (Dṛiṣṭa) conform to nature. The invisible ones (Adṛiṣṭa), for whom more regulations were necessary, were to be made according to the prescriptions in the texts. The Gods were to resemble the divine or superhuman beings. Their images, being of the invisible class of things, naturally were made 'real' by the Dhyāna mantras or conventional descriptions in the religious texts. It should be remembered that this similarity with the real did not mean similarity in mere form or merely similarity with nature in all cases. In case of invisible unfamiliar things, this similarity was to be that with the conventional forms which were often the result of an idealism. Thus Coomaraswamy speaking of the 'Satya' class of painting (J.I.S.O.A., 1933, p. 26ff) says that "Kimcilloka-Sādṛiśya" of this class of painting is 'the unity of which is only somewhat as to the world' and Sādṛiśya is not resemblance or likeness but all of which has reference to unity self-contained in art". In other classes of painting, "the realistic or pictorial element is much greater." Thus though 'Sādṛiśya' was an essential factor of Indian art productions, images of Indian Gods widely differ from those of the Greek Gods.

The sixth 'limb' of a citra is 'Varṇikābhaṅga' or differentiation of colours, of the first list and 'Varṇavyatikrama' of the third. The Vish. Dharm. does not refer to it in the verses under discussion, but in the verse preceding this refers to irregular colouring as a defect in painting. This rule is not only applicable to painting but also to sculptures, as is evident from the colour of the Gods described in all the religious texts The symbolic significance of different colours has already been discussed.

The 'six limbs' of Indian art productions and the methods indicated in the texts thus indicate that every painting or sculpture must have distinct forms, must maintain proportion and symmetry in its size and measurement,' must

express some Rasa (or bhāva), must be beautiful, must be properly coloured and must be as real as possible.

Besides the texts discussed above, these essentials are also met with in several other works. The Hayaśirṣa (as quoted in the Haribhaktuvilāsa) also says that all images should be "Kānti-bhusaṇa-bhāvāḍhyā" i.e. rich with beauty, decorations and bhāvas (moods). Like Samrāṇgaṇa, the Śilparatna, though not mentioning these qualities in one place, deals with all these matters. Even Sanskrit literature abounds with such passages. As Raghavan has pointed out (Ind. Hist., quaterly, 1933, no. 4, page 898). Vāmana refers to 'Rekhā' in painting as similar to Rīti (style) in poetry, and to colour which gives brightness (aujjvalya) to a picture, so that it looks new and fresh which is Kānti (Lāvanya of the above mentioned texts). Similarly Jayadeva in his 'Chandrāloka' says that the Rasa theory is applicable to Epics, dramas as well as in 'Kārya' (art productions).

Besides these six qualities discussed, the Vish. Dharm. and the Samarāngana refer to other matters regarding a citra or about the methods of its execution. The 'Vibhaktatā' of the V D. which means 'articulation' in painting is also mentioned in the Samar. (Ch. 78) which says that an image should be made 'Yathānyāya' (according to proper laws) and 'Suvibhakta' by the rules of measurements. So we find that rules of symmetry and proportion impart 'Subibhaktatā' to paintings as well as images. 'Kshaya' and 'Vṛiddhi' are two other features mentioned in the Vish. Dharm. and dealt with in chapter 39 also. The two terms mean 'decrease' and 'increase' respectively and has been translated as 'foreshortening' in case of paintings. This corresponds to 'making higher or lower' or 'uprisings and depressions' of other texts on sculpture. (Cf. Bhoja's, Śṛiṅgāra—Prakāśa and Hemchandra's Kāvyalaṅkāra Viveka quoted by Raghavan, Ind. Hist., quarterly, IX.4).

The Vish. Dhar. as well as the Samar. refers to another important feature of works of art as 'Vartanā'. This is treated in the former work in one chapter (Ch. 41) and referred

to in other places. Thus "The Connoisseurs praise the Vartanā" (Ch. 41). "A painting is madhyama, adhama or uttama as it is either devoid of Vartanā or having partial Vartanā or having this all over respectively" (Ch. 42). Three methods are prescribed in chapter 41—viz. Patraja, Airika and Vinduja. The meaning of these are not clear at all. The Aparājitapracchā refers to Citra Patra and Citra Kaṇṭaka. Whether the former is related to the latter text is not clear to us. In fact the word "Vartanā" has been translated by Kramrisch as "display of light and shade". But this meaning is not applicable to the word as used in other texts. The Samarāṅgaṇa deals with a chapter called 'Aṇḍakavartanā' (Ch. 74). This word, therefore, cannot mean only light and shade' which is applicable to paintings only. The word is found used also in architectural treatises. The Hayaśīrṣa Pañch. (Saura Kāṇḍa, Ch. 19) thus refers to the descriptions of various order of temples as 'Deśa-viśesheṇa Vartanā' and also to 'Drāviḍī Vartanā'. Here the word means perhaps 'construction of the final form' 'execution of the real form' as we get it also in words such as 'Prāsāda Vartanā', 'Liṅgānām Vartanā' (Maya 33. 92-93). The Nāṭyaśāstra (Ch. 23.80ff) refers to application of colour and dress as 'Vartanā', by which an actor is transformed into a new form i.e. of the personnel of the drama. Does it refer to the 'make up'? These various uses of the word, therefore, indicate that 'Vartanā' means final modelling by which the work is brought into existence and its characteristics are thus revealed. The Samarāṅgaṇa (Ch. 79) in describing the nine positions says that thus are created 9 Vṛittis. So 'Vartanā' and 'Vṛitti' arising from the same root indicate that Vartanā work included giving proper postures to the figures which will ultimately reveal action and bhāva of the figures. Hence the Samarāṅgaṇa in dealing with essentials of a Citra separately treats with 'Aṇḍaka Vartanā' in one chapter. Vartanā is thus the final touch of the brush (light and shade in painting) or the chisel which brings a structure or a figure into existence by giving final form to it.

§15. Postures of Figures—Rasas and Action

The importance of postures in works of art is recognised in all the treatises. This posture depends on the position of the body, face, eyes, hands and legs. Position of these limbs indicates the action in which the figure (in painting or sculpture) is engaged and also the bhāva (mood) and Rasa which are thus expressed on its face.

As already said, all figures must have bhāva, i.e. must express some action, sentiment and mood. The Samarāṅgana (Ch. 82) says that "By indicating the meaning (Artha) with the hands and explaining or proving (Pratipādayan) it by its looks, a figure looks alive (sajīva), for thus it exhibits all actions (Sarvābhinayadarśana). The same idea is expressed also in the Nāṭyaśāstra (see above). The Devatāmūrti Prakaranam (Ch. 8) also expresses the same idea. According to it "In dancing, face, hands and dṛiṣṭi (eyes) should be turned into different positions (Bhaṅge Bhaṅge Kuryāt), for on these hands and the like, depends expression of action". Further, "where there is the hand, there is dṛiṣṭi; there is the mind, where the dṛiṣṭi exists. Where there is mind, there is bhāva; and Rasa is there where the bhāva is. By the mouth is the song lengthened (sung), by hands is explained the meaning. From these four arises 'Bhāva' and Tāla (of songs) is indicated by the feet".

The Rasas are eight in the Nāṭyaśāstra, but nine in the works on poetics and Śilpa (Vish. Dh., Ch. 30 & 43). The Samarāṅgana refers, however, to eleven Rasas, the two new being 'Preyas' (or Premā) and Pratyayākṣa or Ahaṃpratyaya, as thought by Raghavan (Ind. Hist. Quarterly, IX, 4, p. 898ff). As these Rasas are to be indicated by looks (position of the eye), the Samarāṅgana also deals with it in some detail. There are eighteen kinds of dṛiṣṭi, according to this book. They deserve some consideration here. This topic is also dealt with in the Nāṭyaśāstra according to which there are eight Rasadṛiṣṭis, eight expressing 'Sthāyībhāva', 20 of other kinds and eight arising out of the Rasas (Rasaja), thus 44 in all. The Agni Purāṇa (Ch. 341) refers first to 3 Bhāva dṛiṣṭis, giving rise to 36 others and eight Rasaja

ones. The Vish. Dharm. (Ch. 25) refers to 9 dṛiṣṭis for Sthāyībhāva and 36 others. In this matter it is difficult to say whether the Śilpa texts were indebted to the Nāṭyaśāstra. Comparison of all the texts shows that the Vish. Dhar. does not strictly adhere to the names as given in the Nāṭyaśāstra. The 'Śānta' dṛiṣṭi is not found in the Nāṭyaśāstra. Similarly the names in the Samarāṅgaṇa differ in some respects from the V.D. or the Nāṭyaśāstra. This shows that all these texts were not copied from one another, but had some common text to follow. It is interesting to note that one of the dṛiṣṭis called the 'Yoginī' is described in the Samar. thus, "Without any transformation (Vikāra) and directed towards the tip of the nose, because the minds is engaged in the Tattvas, this look is called the Yoginī". This look is, therefore, what we notice on the Buddha images. The Mayaśāstra, however, prohibits the look of the images from being directed towards the tip of the nose. These looks are to be given to the figures to indicate various Rasas Thus the 'Lalita dṛisti' indicates Śṛiṅgāra Rasa, 'Vikasita' expresses Hāsyarasa and so on. According to the Śilpa texts, these Rasas are to be used in the figures not only of men but also of all living beings. Thus are the figures embodied with Rasa, Bhāva and Kriyā by the positions of the eye and also other parts of the eye (such as Puṭa, Bhrū etc.) (Agni Purāṇa, Ch. 34; V.D., Ch. 25; Manasollāsa, Ch. 1, p. 248). (See Table)

The positions of the hands or the Mudrās have been well dealt with by Banerjee. A few words need be said here about them as noticed in the Samarāṅgaṇa. The Nāṭyaśāstra describes 108 kinds of hand poses used in dancing. All these were not, however, used in works of art. The Vish. Dharm. (III-26) contains only 30 names of dancing poses, 13 Saṃyukta (joint) hands, and 22 Asaṃyukta hands, and 66 in all. The Abhinaya Darpaṇa describes 28 single and 28 combined hand poses (=56 in all). The Samarāṅgaṇa refers to 64 poses of the hands; but describes 28 Nṛitya poses, 24 single hand poses and 15 combined hand poses, thus numbering 67 or 68 in all. The Ms. is lost

after the description of the 19th pose. A comparison of the V.D. list with that in the Samar. shows that the names of the Saṃyukta hands are exactly the same in both the books. Among the single hand poses, Mṛigaśiras in the V.D. is 'Ahiśiras' in the Samar. and the Abhinaya Darpaṇa. 'Lāṅgula' of the V.D. is written (perhaps mistakenly) as 'Kāngula' in the Samar.; and 'Kālapadma' of V.D. has been read wrongly as Alapadma in the Samarāṅgaṇa. Two names not found in the V.D. but noticed in the Samarāṅgana and Abhinaya Darpaṇa are "Urnanābha" and "Tāmrachuda". Several names of dance poses in the S S differ from those in the V.D. 'Laghumukha' of the V.D. may be the same as "Suchimukha" in S.S., 'Nitamba' of the V.D. is replaced by Uttāna in S.S. Other names also differ from those in the V.D. as well as the *Abhinaya Darpana* and the Nāṭyaśāstra. So it cannot be said that these four books copied one another. The Agni Purāna (Ch. 341) also describes 24 single-handed and 13 joint-hand poses The names are more allied to those in the S.S than to those in the V.D., though the difference with the latter is very slight. (See Table)

The 'Mudrās' in the Śilpa texts clearly shows the relation of the Citraśāstra with the science of dancing and acting Banerjee has shown how many of these poses are noticed in the hands of available images. Thus what is true of painting is also applicable to sculpture. Thus what are known as the 'Saḍanga' or 'Ashtāṅga' of painting are also the essentials of Indian sculptures. These characteristics of Indian art may be discovered in the art productions from the Gupta period onwards till the late medieval ages.

Besides the poses of eyes and hands, the V.D. and the Agni Purāṇa, following the Nāṭyaśāstra, refer to and describe various poses of the body and its other limbs (Aṅgakarma). The Agni Purāṇa describes 12 kinds of body poses, 13 kinds of head movements; and the VD. (Ch. 29) describes the various kinds of gaits. How far these poses are noticed in the sculptures and paintings has also to be

investigated. All the poses described in the Nāṭyaśāstra are not naturally expected in sculptures and paintings, except in scenes of dancing. God's images do not require all these poses. The Mudrās in the hands of gods have been dealt with by Banerjee. The Vish. Dharm., however, prescribes that in the image of Viśvarūpa "all hand poses as in the science of dancing should be shown".

§16. Implements and Vehicles of Images

Besides the above-mentioned topics, the texts on Vāstuvidyā also contain rules and regulations regarding the implements in the hands of images, their ornaments and other decorations, and their vehicles (Vāhanas) These matters are generally treated along with the descriptions of the respective gods. Some of the works, however, deal with them together in separate chapters. Thus the decorations and ornaments are described in the Vaikhānasa Kāśyapa Jñānakāṇḍa (Ch. 52) and the Aparājitapracchā (Ch 236). The implements are described in the Aparājitapracchā (Ch. 235) and they are said to be of 36 kinds. The Śukranītisāra also refers to them. Separate discussions about the Vāhanas are found in the Śilparatnam (Pt. II, Ch. 21) and the Śukranīti (Verse 135 of Sec. IV of Ch. IV).

The various implements undoubtedly signify the attributes or qualities of the gods. The antiquity of such implements in the hands of the gods may be traced from the time of the Indus Valley civilisation and the Rigveda. Śiva's figures in the Indus Valley remains are marked by horns or a Śūla, though not always in the hand of the god. The Vedic people also knew Śiva-Rudra as having a Śūla as the name 'Śūlagava' Sacrifice performed in his honour indicates. The symbolic interpretations of many of these implements are found explained in the Vishṇudharmmottaram (See Appendix).

Similarly, the Indus Valley finds help us in tracing the origin of the Vāhana of the gods. Sometimes the gods themselves were represented in the Indus valley in animal

forms, and later on, these animals became the respective vāhanas of those gods. The figures of Bulls on the seals discovered at Mohenjodaro and other places perhaps, signified Śiva or his Vāhana (Bull). Similarly, the so-called Śiva Paśupati figure has two deers below the seat, and in later ages, deer appeared even on the hands of Śiva images. In the Śrī Sukta of the Veda, Śrī is represented as a golden antelope; but this animal was not, in later ages, to be found as a vāhana of Lakshmī (the counterpart of Vedic Śrī). Brahmā in Indian traditions is known to have been born as a deer, and Śrī was a wife of Brahmā. Hence perhaps we find 'Śrī' as described as a 'Hariṇī' in the Śrī Sūkta. This perhaps also explains why deer was not found associated with Lakshmī (wife of Visṇu) (See author's 'Cult of Brahmā', Ch. V). Deer was also the vāhana of Vāyu (The Rigveda 1.11.7 associates Maruts with spotted deer). The association of elephants with the Lakshmī figures (Gaja Lakshmī) has raised some controversy among scholars. This cannot be fully explained with reference to mythology. But as Lakshmī may be regarded as another form of the Earth goddess (Goddess of Abundance), and as the Cchāndogya Pariśīṣta associates 4 elephants with the image of Bhūmi (Earth goddess), Lakshmī also was thus related to elephants. This may also be explained with reference to the fact that Śrī and Lakshmī were differentiated in several texts, the former being associated with elephants, a symbol of Brahmā and the latter having no elephants, being a Vaiṣṇava goddess.

According to the Āśvalāyana Gr. Pariśiṣṭa both God Varuna and the Goddess of Water had makara as their vāhanas. Later on, this animal became the vehicle of Gangā. Lion is generally found as the vāhana of the Devī images. But the Āśval. Gr. Pariśiṣṭa describes the planet god 'Budha' as riding on a chariot of 4 lions, and the Śilparatnam also describes him as sitting on a lion. The Vish. Dharm. describes Goddess Bhadrakālī as sitting on a lion (as the other Devī images). Goddess Jyeshṭhā is also known to be riding a chariot of lions, and tigers following

her (Banerjee). In the south, this goddess is represented as riding on a donkey (like Sitalā of Bengal). Goddess Kālikā also rides an ass (V.D.). According to Kalikā Purāṇa, Goddess Vikaṭā sits on a camel. According to Vish. Dharm. God Virūpāksha rides on a camel. Buffaloe is the vāhana of Yama, Vārāhī and Vaivasvatī, daughter of the sun god. Dog is associated with the images of Vaṭuka Bhairava, as well as Rebanta. Goat is the vāhana of Agni and a ram is that of Kuvera (Agni P.). Rat is the well known vehicle of Gaṇeśa. Horses and elephants as vāhanas of Gods are specially treated in the Śilparatnam (Some are described in the Mānasāra).

Several birds are also known as the special vehicles of gods or goddesses. Of them, Garuḍa is well known. Banerjee has shown how it arose from 'Garutman' as a name of the 'Sun God' in the Vedas. Swan was the vāhana of Brahmā, and of his consort Saraswatī. It was also the vāhana of Varuṇa according to the Vish. Dharm. The earliest representation of swan associated with some god is perhaps that on some of the Asokan pillars which has not been explained so far (See 'Cult of Brahmā', p. 99). The pigeon was Kāma, the son of Brahmā or Dharma and is hence the vāhana of the planet God, Ketu, a form of Kāma. The peacock was associated with Kārtikeya. Four parrots were the vāhana of Agni, according to the Vish. Dharm. Yogeśvarī, one of the Mātṛikās rides on a vulture or crow.

Not only were animals or birds the vāhanas of the Gods, but chariots of various kinds were also made their vehicles. The Vedas thus refers to the chariots of the Sun-God, God Kāla and others. Gods Nirṛiti and Kuvera ride on chariots drawn by men.

That the vāhanas and the chariots also had some symbolic significance is apparent from the Vedas and purāṇas (See below). The Atharvaveda (XIX. 53) explains the significance of the various parts of Kāla's chariot. The Mahabharata explains the chariot of Brahmā symbolically (Mabh. XII., Ch. 236, Cal. Edition). The Purāṇas also explain the chariot of Sūrya in this manner (Agni Purāṇa,

Ch. 120). The symbolic interpretations thus run through all the features of the Gods. Even Yaska had explained the anthropomorphic form of Agni symbolically. The Śilpaśāstras by their injunctions added beauty and life to the divine mysticism of the images, and tried to give reality to an ideal. Only a thorough study of these canons can make proper appreciation of Indian art possible in order to distinguish it from that of other countries.

§17. The Concept of Image and Image Worship

Indians worshipped images from the dawn of their civilisation By what term were images called by the ancient Indus valley people is not yet known to us. Words denoting an image are doubtfully traced in the Vedas. When definite references were made to images, they were called 'Pratimā'. This is the word found in the Gṛihya Sūtras, in the Arthaśāstra and other early texts. All its synonyms —'Pratīka', 'Pratikriti', 'Prativimba', 'Vimba' mean a 'reflection', a 'representative figure' or a 'symbol'. "Form not seen is Prakriti, the universe is Vikṛiti. Worship and meditation is possible when Brahmaṇ is endowed with form (Rūpa)". Hence was the origin of Brahmaṇa's Rūpa which was shown to the devotee by Brahmaṇ Himself. But a symbol may be an work of art or a mere stone or tree. When a symbol is given an anthropomorphic (or sometimes Theriomorphic) form, it becomes an image or icon. A symbol such as the 'Śivalingam' is thus divided into 'Sakala' (with kalā i.e produced artistically) or 'Niṣkala' (i.e. without art), the former having human form attached to the Lingam and the latter being a pure Liṅgam only. Thus art influenced religious symbols (of the high class people) even in the later Vedic period; though it had already been done in the Indus valley period. "In imitation of these works of art, here is a work of art accomplished, an elephant, a goblet, a garment, a gold object, a mule chariot are works of art" (Ait. Br., VI. 5.27). Even before it, the altar had a symbolic significance. Vedi was the (Goddess?) Earth itself,

where the kindling Fire, the messenger of the Gods united the Earth with the Heaven. The terrestrial fire brought its worshippers to a close relation with the celestial fire. The Fire god as representative of all gods came down on the altar to consume the oblations.

The simple invocation of the Gods on the altar turned in course of time into magical rites of sacrifices compelling gods to shower benedictions on men. The construction of the altar became a complicated method as envisaged in the Śulva Sūtras. Then Philosophers (of the Upanishad) worshipping the 'formless Absolute' tried to do away with outward forms of worship. But ordinary men influenced more by the pre-Vedic system than by the Vedic philosophers could not do away with the outward forms of religion and gods. An altar-like construction was still retained. It was the 'Vajrāsana' of the Buddhists, Dharma of the Devadhammakas, the Pīṭha or Piṇḍikā of the image-worshippers. The visible object of worship was at first the fire burning on the altar, representing whatever god was the main object of worship. Others worshipped before the altar on which were other symbols of their gods. The image-worshipper wanted a more tangible form, an object bringing greater concentration in their performance of the Dhyānayoga. But that image must be the connecting link between men and God. The altar (the Earth, the Earth goddess) became the Pīṭha (Prakṛiti) and the image of the God was Purusha Himself[1]. The attitude of the people had already been influenced by the Sāṃkhya Philosophy.

The altar was to be measured by the unit 'Paurusha' i.e. 108 aṅgulas. The image (the Purusha) was to be normally 108 aṅgulas in height. Thus the 'Navatāla' became the most normal size of images. The face reflects the mind.

[1] (a) Agni Purāṇa—See summary above of Ch. 56. (b) Hayaśirṣa Pañcharātra (Saura Kāṇḍa), Ch. 32. See summary, above and also Haribhaktivilāsa (18th Paṭala) "Arcāmūrtiḥ Smṛitaḥ Krishṇa Piṇḍikā Kamalālayā Tayor— Yo Vidhinā Yogaḥ sa Pratiṣṭhā Prakīrtitā".

The face was to measure one 'Chāyāpurusha' i.e. 12 aṅgulas[1] or one Tāla. The household deity should not be higher than 12 aṅgulas. In the Āśval. Gr. Pariśiṣṭa the deity was to measure from 5 to 10 angulas. Is it because the Purusha "atyatiṣṭhat daśāṅgulam" (Puruṣa Sukta).

The image taking the place of the altar and fire of the earlier periods was now looked upon as the god himself. With the rise of the Bhakti cult, a personal love bound the worshipper with the image of his cult deity. The Abhicārika images could still be compelled to do even harm to the enemy of the worshipper. But to the Vaiṣṇava the arcā was one of Viṣnu's fivefold forms, and hence an object of deep love. The sense of duality and the sense of inferiority of the worshipper naturally compell the latter to bow down, to propitiate his deity. This attitude is the most common. The worshipper worships his deity with dhyāna mantras which mostly signify the god's beauty and form and the worship indicates his love for the deity and obescience to Him (Namo Namaḥ).

But the Vedānta and Sāṃkhya Philosophies had no less influence on a large section of the people. To them, the god worshipped was none else but one's own self or the visible form of the Purusa and Prakṛiti. The temple was the body of the Puruṣa (See Ch. XXII); the image was the Absolute soul (Purusa himself) and the pedestal was the Prakriti. The Purusa cannot exist without Prakṛiti. Hence by installing the image on the pedestal by the ceremony of Pratishthā, union of Purusa and Prakṛiti is performed by the worshipper. This union of male and female divinities formed a principal part of the Tāntric doctrines as well. But the Tāntrics were also as much influenced by the Vedantic philosophy as the Sāṃkhya. Hence in the rites performed by all classes of worshippers, there are common factors.

The image is considered at first a lifeless article of art, a symbol. But the god has to be brought into it. Hence the image must be attractive enough to tempt the god to

[1] Arthaśāstra Tr. p. 131-132, 'Measurements of Space and Time'.

come into it. The material must be perfect, the form of the image must conform to the Dhyāna mantra and then the adhivāsa ceremony brings the god near to the image. "Adhivāsa is the bringing of the god nearer" (Agni Purāṇa, Ch. 59). Then life is infused into the image and its eyes are opened (by Nayanūnmilana rites).

The whole process of bringing the god into the image involved various rites to be performed with citing of mantras. The Dhyāna mantra is to be followed at the very·beginning when the image is to be constructed. These mantras, therefore, describe the form of the deity. Then the mantras of Pratishṭhā are followed by those of the Adhivāsana and Prāṇapratishṭhā (infusing of life). The real worship (Pujā) begins after it. Now the worshipper has again to perform Dhyānayoga for the fulfilment of which the image had been constructed. In doing this, the worshipper had to consider himself as the God whom he was worshipping. The Vaiṣṇavas (Agni Purāṇa, Ch. 39.8), the Sauras[1], Śaivas[2] and the Śāktas all think like this. Most of the sects perform the Dhyānayoga with the mantras in which we find the iconographic descriptions and descriptions of the power of the divinity. But the Tāntrics perform this last phase of the Pujā with no Dhyānamantra but with the Vījamantras which have ostensibly no meaning. Thus the worship which first began with that of a bodied god (Samurta worship) is gradually transformed into one of the formless Puruṣa or Brahman or the formless Śakti. The Vījamantras in course of time were also adopted by even the Vaiṣṇavas and other sects. The whole rites, therefore, show that the Dhyāna mantras which contain the iconographic traits of the god were not the principal mantra of the Hindus. It is perhaps, therefore, that the Hindu Dhyāna mantras do not begin with the words "Ātmānam Siṃhanādaṃ (or such like names) bhāvayet" as the

[1] Hayaśirṣa Pañcharātra, Saura Kāṇḍa, Ch. 31. "Dhyatvā Svadehaṃ Ravivat Suryohamiti Chintayet". (Cf. Garuḍa Purāṇa, Ch. 31, Verse 11).

[2] I-Ś-G-Paddhati, III, 13 Paṭala, Verse 3. "Ātmānam bhāskaram dhyāyan".

Buddhist ones. But in performing the final Pujā, the worshipper had to think himself as the god worshipped. In the final stage of the Pujā, the mind is entirely concentrated in the mantras—some indicating love (Bhakti) to the god, some involving the worshipper in a complete contemplative mood (with mantras 'Dhīmahi'), and others being purely words (may be indicative of the 'Śabda Brahma') with some 'Śakti' (Divine Power) in them. Thus the Pratimā really fulfills the purpose of 'Dhyānayoga'. The Hindus, except perhaps those who believe in the duality of the worshipper and the worshipped, while performing the Pujā of the god in the image, really identify themselves with the Supreme invisible indescribable Absolute soul. So do the Buddhists identity them with the 'Śūnya' or the Vajrasattva.

The attitude of the Indians towards worship of gods and its methods changed from time to time. The various philosophies and sectarian doctrines gradually influenced the system, finally giving to it the present form as we find in the Purānas, the Tantras, the Āgamas and other religious and Śilpa texts. (See Addendum).

APPENDIX G

ORIGINAL TEXTS MENTIONED IN FOOT NOTES

P. 4, f.n. 2. Mārkaṇḍeya Purāṇa, Ch. 49—

(a) पर्वतोदधिसेविन्यो ऽ निकेतास्तु सर्वशः (V. 15)
तास्तु द्वन्द्वोपघातार्थं चक्रुः पूर्वं पुराणि तु
मरुधन्वसु दुर्गेषु पर्वतेषु दरीषु च
संश्रयन्ति च दुर्गाणि वार्क्षं पार्वतमौदकम्
कृत्रिमञ्च तथा दुर्गं (V. 34-36)
गृहाकारा यथा पूर्वं तेषामासन् महीरुहाः
तथा संस्मृत्य तत् सर्वं चक्रुर्वेश्मानि ताः प्रजाः
वृक्षस्यैवं गताः शाखास्तथैवन्यापरागता
याः शाखाः कल्पवृक्षाणाम् पूर्वमासन् द्विजोत्तम
ता एव शाखा गेहानां शालात्वं तेन तासु व्रत् (V. 52-54)

(b) कृतेष तेषु स्थानेषु पुन चक्रु र्गृहाणि च
यथा च पूर्वमासन् वै वृक्षास्तु गृहसंस्थिताः
तथा कर्तुम् समारब्धाश्चिन्तयित्वा पुनः पुनः
वृक्षाश्चैव गताः शाखा नताश्चैवापरा गताः
अतःऊर्ध्वम् गताश्चान्या एनं (?) तिर्यक् गता पराः
बुद्ध्यान्विष्य तथान्या वा वृक्षशाखा यथा गताः
तथा कृतास्तु तैः शाखास्तस्माच्छालास्तु ताः स्मृताः

(Vāyupurāṇa, Ch. 8. 124-127)

P. 14. शैलवार्क्षिष्टकादीनां सूत्रग्राहिवशात् तु (यत् ?) यः।
तक्षणात् स्थूलसूक्ष्माणां तक्षकः स तु कीर्तितः ॥

(Mayamatam, V. 20)

P. 14. गृहस्योपरिभूमिर्या हर्म्यं तत् परिकीर्तितम्।

(Sam. Sūtradhāra, XVIII. 9)

P. 15. ध्रुवसंज्ञं गृहस्वाद्यं धनधान्यसुखप्रदम् ॥ (Viś. Prakāśa, II. 103)
ध्रुवंधन्यं जयं नन्दं खरं कान्तं मनोरमम्

(Samarāṅgaṇa, XXIII. 6)

P. 16. पूरम पृथ्वी बहुलान् (Rig., II. 24. 189)—पुराण कृर्वः
(Rig., VI. 2.7); कमेन पुरि। (Rigveda IX. 107. 10)

P. 18. प्रपवं पादुकं विद्याच्छिला स्तूपीति कथ्यते
लोहकीलकपत्रादि सर्वं दन्तनखादिकम् ॥
सुधा शुक्लं त्विष्टकौघमस्थि मज्जा च पीतरुक् ।
मेदः श्यामरुचिस्तद्वद् रक्तं रक्तरुचिस्तथा ॥
मांसं मेचकवर्णं स्याच्चर्मं नीलं न संशयः ।
त्वक् कृष्णवर्णमित्याहु प्रासादे सप्तधातवः ॥
(Śilparatnam, XVI. 121-23)

P. 22. अबुध्ने राजा वरुणो वनस्योर्ध्वं स्तूपं ददते (Rigveda)

P. 37. भवन्ति शिल्पिनो लोके चतुर्धा स्वस्वकर्मभिः
स्थपतिः सूत्रग्राही च वर्धकिस्तक्षकस्तथा (Mayamatam, V. 13-14)

P. 38. तत्राद्यः कथितो मेरुर्मन्दरस्तु द्वितीयकः
(Hayaśirṣa Pañcharātra Ms.)

P. 9. वैराजः पुष्पकश्चान्यः कैलासो मणिकस्तथा
त्रिविष्टपञ्च पञ्चैव मेरुमूर्द्धनि संस्थिताः (Agni Purāṇa, 104. II.)

P. 9. वृत्तं समुद्रनामा पद्मः पद्माकृतिः शयनाष्टौ
(Bṛihat Saṃhitā, 56. 23)

P. 9. दक्षिणद्वारहीनम् तु वर्द्धमानमुदाहृतम् ।
पूर्वद्वारविहीनं तत् स्वस्तिकं नाम विश्रुतम् ॥
(Matsya Purāṇa, 254. 3)

P. 55. मातापित्रोरात्मनश्च पुण्याभिवृद्धये शुभस्थल्यान्देवकुलं कारितन्तत्र
(Khālimpur Inscription)

P. 71. प्रसादप्रतिमारामगृहवाप्यादि सत्कृतिः
कथिता यत्र तच्छिल्पशास्त्रमुक्तम् महर्षिभिः (Śukranīti, 4.3.58)

P. 71. अमर्त्याश्चैव मर्त्याश्च यत्र यत्र वसन्ति हि ।
तद् वस्त्विति मतं तज्ज्ञैस्तद्भेदं च वदाम्यहम् ॥
(Mayamatam, II. 1)

P. 72. एकाशीत्या पदैर्भक्तं विधेयं नृपमन्दिरम् ।
(Samarāṅgaṇa S., XV. 9)

P. 74. महारथ्याप्रमाणेन तद्भूमेर्बाह्यतस्ततः ।
व्यासखातान्तरैः सार्धं विधेयं परिखात्रयम् ॥
खातोत्पादोज्झितं कार्यं सत्र्यंशेनार्धतोऽपि वा ।
व्यासतः स्यादशेषेण मूलतस्तदेव तत् ॥
कुर्याद् वप्रं स्वभूभागे परिखोत्खातया मृदा ।
सोत्सङ्गं गजपृष्ठं वा गोत्रीयपदताडितम् ॥
खातोद्धृतमृदा वप्रनिर्माणाधिकया ततः ।
भूप्रदेशान् पुरा निम्नानापूर्य समतां नयेत् ॥

एवं संशोध्य परिखाभित्तयं परितोऽश्मभिः ।
विधेयमिष्टकाभिर्वा सम्यग्बद्धतलं स्थिरम् ॥
सिरावारिभिरापूर्णां पूर्णां वाथाम्भसाम्भसा ।
विचित्राब्जमनोहारि ससंग्राहाम्बुनिर्गमम् ॥

(Samarāṅgaṇa S., X. 17-23)

P. 76. हर्म्याभिरामं मुनिवसति स्वर्गसोपानरूपं
कौबेरच्छन्दबिम्बं स्फटिकमणिदलाभासगौरं प्रतोलिं ।

(Gupta Inscription No. 10)

P. 76. कुर्यात् प्रतोलीः सर्वेषु महाद्वारेष्वथो दृढाः ।
दृढार्गलाश्चेन्द्रकीलाः कपाटपरिघान्विताः ॥

(Samarāṅgaṇa, X. 38)

P. 87. ऊर्ध्वं न सप्तदशकाच्च त्रयोदशकादधः ।
प्राकारोच्छ्रयमिच्छन्ति नापि युग्मकरोन्मितम् ॥

(Samarāṅgaṇa, X. 28)

P. 88. भृगुरत्रिर्वसिष्ठश्च विश्वकर्मा मयस्तथा ।
नारदो नग्नजिच्चैव विशालाक्ष पुरन्दरः ॥
ब्रह्मा कुमारो नन्दीशः शौनको गर्ग एव च ।
वासुदेवोऽनिरुद्धश्च तथा शुक्रबृहस्पती ॥
अष्टादशैते विख्याता वास्तुशास्त्रोपदेशकाः ।
संक्षेपेणोपदिष्टन्तु मनवे मत्स्यरूपिणा । (Mat. Purāṇa, 255. 4ff)

P. 91. गर्गात् पराशरः प्राप्तस्तस्मात्प्राप्तोबृहद्रथः ।
बृहद्रथाद्विश्वकर्मा प्राप्तवान्वास्तुशास्त्रकम् ॥
सविश्वकर्मा जगतो हितायाकथयत्पुनः ।
वासुदेवादिषु पुनर्भूलोकंभक्तितोऽब्रवीत् । (Viś. Prakāśa, 19. 110)

P. 94. मनसश्चक्षुषोर्यत्र सन्तोषो जायते भुवि ।
तस्यां कार्यं गृहं सर्वैरिति गर्गादिसम्मतमिति ।

(Vāsturatnāvalī, Page 13)

P. 98. प्रासादलक्षणमिदं कथितं समासाद् गर्गेन यद्विरचितं तदिहास्ति सर्व्वम् ।
मन्वादिभिर्विरचितानि पृथूनि यानि, तत्संस्मृति प्रतिमयात्र
कृतोऽधिकारः ॥ (Bṛihat Saṃhitā, 56.31)

P. 159. इदानीं द्राविडान् ब्रूमः प्रासादान् शुभलक्षणान् ।
एकभूम्यादयस्ते स्युर्यावद्द्वादशभूमिकाः ॥

(Samarāṅgaṇa, LXI. 1)

P. 166. भूमिकाङ्गुलमानेन मयस्याष्टोत्तरं शतं ।
सार्द्धहस्तत्रयञ्चैव कथितं विश्वकर्मणा ॥

(Bṛihat Saṃhitā, Chap. 56. 29)

नग्नजिता तु चतुर्दश दैर्घ्येण द्राविडं कथितम्।
(Brihat Samhita, Chap. 58.4)

नागराणामिमाः संज्ञा लाटादीनामिमास्तथा।
(Agni Purāṇa, Chap. 104.22)

नागरानधिकृत्येह प्रामेयं वर्तनोदिता।
यो विशेषोऽत्र लाटानां प्रसंक्षेपेणभन्यते॥
नागरैस्तु समालाटा किन्तु ते कर्मभेदकाः।
चतुरस्रौ तु तेषां हि मसूरककपोतकौ॥
(Hayaśīrṣa Pañcharātra, Ch. 19)

P. 170. एकादिसप्तान्ततलानि युक्त्या
शोभादिपञ्चादशगोपुराणि।
शालासभामण्डपशीर्षकाणि
प्रोक्तानि सद्मन्यमरेश्वराणाम्॥
(Mayamatam,* XXIV. 127)

P. 170. द्वारगोपुरकं कुर्यात् पञ्चषट्सप्तभूमिकम्। (Śilparatnam, 41.5)

P. 170. एकादिपञ्चभूम्यन्तमल्पानां गोपुराणि हि।
द्विभौमात् षट्तलान्तानि मध्यानां गोपुराण्यपि॥
द्वितलात् सप्तभौमान्तमुत्तमानां तु गोपुरम्।
(Īśāna-Ś-G-Paddhati, III.35.94)

P. 179. त्रयोदशतलादीन्यप्यतः सन्ति गृहाणि हि।
आषोडशतलं प्राह काश्यपो मुनिसत्तमः॥ (Śilparatna, 37.110)

P. 207. मण्डपाभा यथा द्वारशोभा तत्र प्रकीर्तिता।
दण्डशाला यथा द्वारशाला द्वारप्रासादं प्रोच्यते बुधैः॥
मालिकाकृतिवद् द्वारहर्म्यं तु प्रोच्यते बुधैः।
सशालाकृतिसंस्थानं द्वारगोपुरमिष्यते॥
(MayamatamXXIV. 81ff)

P. 227(a). प्रासादं वासुदेवस्य मूर्तिभेदं निबोध मे।
धारनाद्धरणीम् विद्धि आकाशं शुषिरात्मकम्।
तेजस्तत् पावकं विद्धि वायुं स्पर्शगतं तथा।
पाषाणादिष्वेव जलं पार्थिवं पृथिवीगुणम्॥
प्रतिशब्दोद्भवं शब्दं स्पर्शं स्यात् कर्कशादिकम्।
शुक्लादिकं भवेद्रूपं रसमन्नादिदर्शनम्॥
धूपादिगन्धं गन्धन्तु वागभेर्यादिषु संस्थिता।
शुकनासाश्रिता नासा बाहू तद्रथकौ स्मृतौ॥
शिरस्त्वण्डं निगदितं कलशं मूर्धजं स्मृतम्।
कण्ठं कण्ठमिति ज्ञेयं स्कन्धं वेदी निगद्यते॥

पायुपस्थे प्रणाले तु त्वक् सुधा परिकीर्तिता ।
मुखं द्वारं भवेदस्य प्रतिमा जीव उच्यते ॥
तच्छक्तिं पिण्डिकाम् विद्धि प्रकृतिञ्च तदाकृतिम् ।
निश्चलत्वञ्च गर्भोऽस्या अधिष्ठाता तु केशवः ॥
एवमेष हरिः साक्षात् प्रासादत्वेन संस्थितः ।
जङ्घा त्वस्य शिवो ज्ञेयः स्कन्धे धाता व्यवस्थितः ॥
ऊर्द्धभागे स्थितो विष्णुरेवं तस्य स्थितस्य हि ।

(Agni Purāṇa, 61. 19-27)

(a) प्रासादं पुरुषं मत्वा पूजयेन्मन्त्रवित्तमः

(See No. 22 above)

(c) प्रासादं यच्छिवशक्त्यात्मकं तच्छक्त्यन्तैः स्याद् वसुधाद्यैस्तु तत्त्वैः ।
शैवी मूर्त्तिः खलु देवालयाख्येत्यस्माद् ध्येया प्रथमं चाभिपूज्या ॥

(I-Ś-G-Paddhati, III. 12. 16)

(b) सर्वतत्त्वमयो यस्मात् प्रासादो भास्करो तनुः ।
तद् यथावस्थितं कथयामि निबोधत ।
पायुपस्थौ प्रणालौ द्वौ नेत्रौ ज्ञेयौ गवाक्षकौ ।
सुधा भुग्न (? .....) पिनीज्ञेया स (व) क्षो मञ्जरीकोर्द्धतः ॥
जङ्घा जङ्घातु विज्ञेया वरण्डी वसना मता ।
शुकाघ्रातु भवेन्नासा सूत्राणि विशेषतः ॥
गर्भः स्थिरत्वे विज्ञेयो यो मुखं द्वारं प्रकीर्त्तितं ।
कपाटौ ष्टपुपुटौ ज्ञेयौ प्रतिमाजीवमुच्यते ॥
स्कन्धस्तु वेदी गदिता कण्ठं कण्ठमिहोच्यते ।
शिरोमालास्थितं ज्ञेयं ......चून संस्थितं ।
एवमेष रविः साक्षात् प्रासादस्थेन संस्थितः ।
जगती पिण्डिका ज्ञेया प्रासादो भास्करस्मृतः ।

(Hayasīrṣa Pañcharātra 39, V.R.S. Ms.)

P. 234. (a) अलिन्दानां व्यवच्छेदो नास्ति यत्र समन्ततः ।
तद्वास्तु सर्व्वतोभद्रं चतुर्द्वारसमायुतम् ॥

(Garga quoted by Bhaṭṭotpala)

(b) प्रदक्षिणा गतैः सर्व्वैः शालाभित्तेरलिन्दकैः ।
विना परेण द्वारेण नन्द्यावर्त्तमिति स्मृतम् ॥

(Garga quoted by Bhaṭṭotpala)

(c) द्वारालिन्दोऽन्तगस्तेषां ये चान्ये दक्षिणां गताः ।
विहाय दक्षिणं द्वारं वर्द्धमानमिति स्मृतम् ॥

(Garga quoted by Bhaṭṭotpala)

(d) प्रासादानान्तु वक्ष्यामि द्वाराणि च यथाक्रमं।
दक्षिणे तुरगे सूत्रे पुरादेर्मुखतः (?) स्थिते।
तत् प्राच्या पाश्चम द्वारं प्राङ्मुखं तस्य पश्चिमे।
अभिचारिक कृत्येषु याम्यद्वारं प्रकल्पयेत्।
प्रासादे चतुर्द्वारे द्वाराण्व (कु) यदिसंकरा।
विदिक्षु नैव कर्त्तव्यं द्वाराणि च तथैव च।

(e) विस्तारद्विगुणोच्छ्रायं द्वारं कुर्यात्सर्वदैव हि।
अङ्गुलस्य प्रमाणेन द्वारमान यथोच्यते।
शतंषष्ठ्याधिकं मानमारभ्येह तथा क्रमात्।
दशतुल्या तु चत्वारि द्वार (रा) ण्युत्तमकानितु।
त्रीणि मध्यमकानि स्यु स्त्रीण्येवं कन्यसानि तु।
विस्तारस्तूच्छ्रयोऽर्द्धेन त्रिदारा (वा) उच्छ्रयोधिकः।
चतुर्भिरङ्गुलैर्व्वापि अष्टभिर्द्दशभिः शुभः।
उच्छ्रायपादविस्तीर्णे शाखे द्वेत्वा (तु) सुडुम्बरौ।
बाहुल्य विस्तरार्धेन शाखोडुम्बरयो रिह।
त्रि-पञ्च-सप्तनवभिः शाखाभिः परिकल्पयेत्।
द्वारं नत्वेकशाखन्तु कदाचिदपि कल्पयेत्।
शाखाया स्तुर्यभागेन द्वारपालौ निवेशयेत्।
दण्डपिङ्गलकौ नित्यं सव्यदक्षिणगोचरौ।
पत्रभंगे समिथुनैः शाखाद्धूर्धं विभूषयेत्।
प्रासादमध्यतो द्वार स्थाप्यं किञ्चित् प्रवेश्य तु।

(Hayaśīrṣa Pañcharātra Ms., Ch. 19)

(f) चतुःषष्टि कोष्ठकानां मध्ये च तत्र विन्यसेत्।
द्वारं च मध्यमं श्रेष्ठं समदिक्स्थं प्रशस्यते॥
विस्तारद्विगुणोत्सेधः कटिरंशे तृतीयके।
विस्तारार्धेन तद्गर्भो भित्तयोऽन्यास्तथान्तरे॥
गर्भाच्चतुर्थभागे च द्वारं तद्विगुणोच्छ्रितम्।
द्वारोच्छ्राय चतुर्भागो विस्तारः शाखयोः स्मृतः॥
उदुम्बरस्तथैवोक्तः शाखामानेन नित्यशः।
घनत्वम् पादमानेन शाखयोश्च प्रकीर्तितम्॥
एकशाखा स्त्रिशाखा वा पञ्च सप्त नवापि वा।
द्वारिकास्तत्र शस्यन्ते द्वारिभिर्या अकुञ्चिताः॥
शाखाचतुर्थ भागेऽत्र प्रतीहारौ तु कारयेत्।
प्रमथैर्विहगैश्चैव जीवजीवजलोद्भवैः॥

श्रीवृक्षस्वस्तिकैः पद्मैर्हंसैश्चैव मनोरमैः ।
पत्रान्तरे लताभुजैर्हर्षैर्नायकादिभिः ॥
देवं सपिण्डिकं स्थाप्यं द्वाराढ्यं शोभितम् शुभम् ।
(Kāśyapa quoted by Bhaṭṭotpala)

P. 238. चतुःषष्टिपदं कार्यं देवतायतनं सदा ॥
द्वारं च मध्यमं तस्य समदिक्स्थं प्रशस्यते ।
द्वारं विस्तरतः कार्यम् भूपाल द्विगुणोच्छ्रयम् ॥
(Vishṇudharmmottaram, Ch. 88)

P. 242. (a) पूजयित्वा पद्मनिधि तदधो दक्षवामतः ।
मायाशक्ति च (?) चिच्छक्ति गङ्गां च यमुनां तथा ॥
(Merutantra quoted in Puraścharyārnava)

(b) द्वारमस्त्रां बुभि प्रोक्ष्य द्वारपूजां समाचरेत् ।
ऊर्ध्वोदुम्बरके विघ्नं महालक्ष्मीं सरस्वतीं ॥
तयो दक्षिणशाखायां विघ्नं क्षेत्रे शमं ततः ।
तयोः पार्श्वगते गंगायमुने पुण्यवारिभिः ॥
देहल्यामर्चयेदस्त्रं प्रतिद्वारमिति क्रमात् ॥
(Sāradātilakam, Ch. 4)

P. 243. ईशशशिनन्दिकेश्वरसुरपतयो वै महाकालः ।
दिनकरवह्निबृहस्पतिगजवदनयमाश्च भिङ्गिरिटिः ॥
(Mayamatam, Ch. 23, Verse 50)

P. 244. शाखोर्ध्वं न्यस्य रत्नानि न्यसेदूर्ध्वमुदुम्बरम् ।
तस्य मध्ये स्थितादेवी साक्षाल्लक्ष्मीः सुरेश्वरी ॥
कर्त्तव्या दिग्गजैः सा तु स्नाप्यमाना घटेनतु ।
शाखोडुम्बरकौ कार्यौ पत्रवल्ल्यादिभूषितौ ॥
एकशाखं त्रिशाखं वा षट्शाखं द्वारमिष्यते ।
नवशाखञ्च कुर्वीत अत उर्ध्वं न कारयेत् ॥
विष्ण्ववतारदपार्श्वैः शाखां यत्नाद्विभूषयेत् ।
(Hayaśīrṣa quoted in Haribhaktivilāsa, XX)

Appendix H

I. Colours

1. Saṃyukta Nikāya—(quoted by Kramrisch):
   Materials for colour—Rajana (resin), Lākhā (Lac), Haridrā (Turemeric), Nīlī (Indigo), manjestha.
2. Vishṇudharmmottara, Ch. 40:
   Gold, silver, copper, mica, deep coloured brass, red lead, tin, yellow orpiment, yellow myrobalan, lac, vermilion, Indigo, exudition of Sindura tree.
3. Abhilasitārthachintāmaṇi (Mānasollāsa), Pt. II, Ch. I, white colour of conchell, red (sona) from Darada (?), blood red (alaktaka), Lohita (Gairika), Green brown (Pīta) from haritāla, black from kajjala.

Mixed colours

Darada and Śāṁkha give colour of lotus.
Gairika and conchshell — colour of smoke.
Haritāla and conch — ?
Alakta and conch — ?
Kajjala and conch — Colour of smoke.
Nīlī and Śaṁkha — Colour of pigeon.
Nīlī and Haritāla — Harit colour.
Kajjala and Gairika — Śyāma colour.
Kajjala and Alakta—Pāṭala colour.
Alakta and Nīlīkā — Colour of Jambufruit.

4. Śilparatna, Ch. 46, Verse 117ff.
   Mild red — from sindura; medium red—Gairika.
   Deep red — from juice of Lac.
   Pīta — from Manaḥsilā (same as Haritāla).
   All these colours were to be mixed with extract of Nimba.
   Mixed colours — Verses 134-142.
5. Kāśyapaśilpa, Ch. 85.

II. Vajralepa

Bṛihat Saṃhitā (Ch. 57, Cal. Edition)—4 kinds.
Vishṇudharmmottara (Ch. 92) — 5 kinds.
Śilparatna (Ch. 14, Verse 74; Ch. 46, Verse 131-132).
Mānasollāsa (Pt. II, Ch. I), Ī-Ś-G-Paddhati (47.61ff).
Mentioned (not described) in Hayaśīrṣa (Saura Kāṇḍa, Ch. 32 & 39).

According to the Bṛ. Saṃhitā, Vajralepa should be put as a coating on temples, houses, Balabhīs, Liṅgas, images, walls and wells. Four kinds of preparations are described. These four are found in the Vishṇu. Dhar. (Ch. 92) exactly in the same form. But the latter adds one more. The first four are decoctions made of various fruits and trees' bark and other astringents, but the fifth is mixed up with Sudhā (lime). This is with some variations mentioned in the Śilparatna (Ch. 14) as a building material. Another prescription in Śilparatna (Ch. 46) is meant for coating on the ground of painting and is similarly described also in the Mānasollāsa (Pt. II, Ch. I). The Vajralepa made of several metals (as in Bṛ. Saṃ. & Vish. Dharm.) is called Vajrasaṃghāta by Maya, as noted by Varāhamihira. But this is not found in the Mayamatam. A kind of Saṅghāta is mentioned in the Samarāṅgaṇa in connection with the preparation of clay for images (for Lepyakarma).

The Śilparatna (Pt. II, Ch. 18), Mayamatam (Ch. 34) refer to two other kinds of decoctions as strengthening and binding materials. They are the Ashṭabandha and the Bandhodaka. The Ashṭabandha (as in Śilparatna) was used to be besmeared on the wooden peg (Śūla) for construction of images (called Lepya or Miśra) made of choirs or straw (Rajju) and then coated over with clay. The decoction was made as follows:—Four parts of decoction of Śrīphala, three parts of Kunduru (a scented thing), Rikṣa, 5 parts of Guggulu, one part molass (Guḍa), juice of Sarja (Śāla) in 8 parts, three parts of Gairika earth should be mixed; then they should be cooked with Ghee and Oil. When it thickens like honey, it should be besmeared on the Śūla.

The Aṣṭabandha in the Mayāmatam (Ch. 34) was used as a strengthening material for Liṅgas, but the real purpose is not mentioned. The decoction is to be made thus:—

Lākṣā (Lac), molass (Guḍa), madhūcchiṣṭa (wax), Guggulu in equal parts, double of this, juice of Sarja, powder of Gairika earth; half of that, Ghana Chūrṇa (?), half of all these, oil; all should be placed on an iron pan and should be stirred while boiling with mild fire. This will be a 'bandhana' like that of stone. (cf. Ī-Ś-G-Paddhati).

The (*Bandhodaka*) was a material for use in buildings according to Maya (Ch. 18) and Śilparatna (Ch. 14). It was a sort of decoction which was to be mixed with a sort of a stucco with which images were made, or on which paintings were drawn. The preparation is as follows:— milk, curd, māsa, Yuṣa, Guḍa, Ghee, banana fruit, water of cocoanut and juice of ripe mango in equal quantity.

[The stucco was made of lime stones of various shapes known as Karāla, Mudga, Gulmāsa, Kalka and Chikkana. The first three kinds should be stirred in pure water. Then it should be mixed with juice of birk of Kshīra trees, Mango tree, Lākshā, Kadamba, Rudrākṣa, Triphalā and Māṣa-yusa. Then Śarkarā and Śukti powder (?) should be mixed with that decoction and stirred with khura, and filtered through a piece of cloth. This mixed with Bandhodaka and again mixed with other things (as in Śilparatna, Verses 69ff) give rise to a good kind of Sudhā (lime or stucco)].

III. Clay for Images

Clay images were of two kinds, one made of pure clay and the other (called 'Lepya' image) of clay coated on straw or choirs etc. Both these kinds of clay, however, were to be specially prepared.

The Haribhaktivilāsa prescribes a kind of clay preparation, as it learnt from the Hayaśīrṣa Pañch., "Small pieces of stone chips (or lime stone chips) mixed with iron dust in equal parts, to be mixed with clay and pressed with some astringents (kaṣāya) and (extracts of) Khadira, Arjjuna, Sarja,

Śrīveshṭaka, Kuṃkuma, Kauṭaja, Āyasa trees' and oil(?), Dadhi, milk and ghee. The clay should be again and again placed inside the decoction and then left for one month.

The Atri Saṃhitā (Ch. 19) refers to a preparation of Ghaṭa (kaṭa) Śarkarā (Verse 42ff) to be coated on stone images. About clay image, it prescribes that earth should be collected and mixed with auṣadhas, Chūrṇas (is it of Kaṭaśarkarā?), astringents and 5 Gavyas, extract of Kapitthva and river water—should be left over for a month or 1½ month. The Kāśyapa Saṃhitā also has a chapter on 'Mṛitsaṃskāra' and 'Sarkarā Saṃskāra'.

The Samarāṅgaṇa Sūtradhāra (Ch. 73) contains the formula for the preparation of Lepya. "Earth should first be collected from tanks, wells etc. or from the root of trees, or from banks of rivers and from underground roots. Different colours were fit for different castes. Take some quantity or earth free from big stones. Throw on it the extracts of śālmalī, māsha, Kumbha(?) Madhuka, and triphalā and a quantity of sand, Betelnut, vilva, Chanaka (Chalk), horse's hair (from head) and cow's hair; cocoanut fibres should then be mixed with the earth. Or mix double the quantity of husk with equal quantity of earth and sand. Mix with two parts of this clay one part of cotton (kārpāsa). Mix up all these, and one third of it should be thrown over (?). Then the aforesaid(?) should be mixed with Kaṭaśarkarā (a plant or lime stone chips?) and a paste (kalka) should thus be made, with a piece of cloth. The form (of the image) should be surrounded by it". The meaning of the last verses are not clear. This is clear that earth, the decoction and the paste (called Saṅghāta) should be mixed to give a form to the image. Then a lepa (coating) should be made with Kaṭaśarkarā by a brush. (Kaṭaśarkarā is mentioned as an ingredient in preparation of 'Prasanna' kind of liquor in the Arthaśāstra (II. 25.42).

The Śilparatna contains several formulas for the clay to be used in image-making. One kind of it, called 'Mṛitsnā' (Śilparatna, Ch. 14.118), is the same as the clay prepared for brick-making (described before in verses 45-48). This

is made of clay (free from husk, charcoal, bones, stones, sand, wooden pieces or pieces of bricks) stired by foot again and again, and mixed with extracts of barks of some trees and Triphalā water for three months. This is perhaps meant for making images wholly of clay.

The second prescription (Śilparatna, Pt. II, Ch. I & I-Ś-G-Paddhati, Paṭala 36, Verses 16ff) is meant for clay to be coated on images made of straw etc. (i.e. a miśra or lepya image) and also for making clay images. "Make a powder of earth of white, red, yellow or black colour, according to the castes. Make a powder of wheat, barley, māsa, Guggulu. Make a decoction of Lākshā, Śrīveṣṭaka, śyāma, Sarja of equal quantity and one part of Kundurika. Mix these with the 5 gavyas and oil for a fortnight. Leave it for a month. Lingas and Pīṭhas should be made of it". Or mix Mritsnā (as described above) with the 5 gavyas and leave it for one month". When a liṅga made out of these things are burnt, that becomes a Pakkalinga. In a lepya image, coat the image (made of Rajju) with the clay prepared and then let it dry.

Another and more elaborate preparation of clay is prescribed for coating (for Lepya images) (Śilparatna, Pt II, Ch. 19) on images. Almost the same is found in the Kāśyapaśilpa (Ch 84). The preparation is as follows:—"Collect the required earth (of colours suitable according to caste) from prescribed places. Stir it in a vessel and filter it with a piece of new cloth. When it is free from water after being dried in the sun, rub it with decoction of bark of Lākshā and Kshīra trees. Dry it again and mix it with a decoction of Khadira and Arjuna. Rub and let it dry till the mud becomes a Pinda. Again mix it with Triphalā water and let it dry till very little water is left. Then again make a lump (Pinda) of it. Divide it into four parts. Take one part of it, mix with mud again and rub it with Triphalā water for 7 to 10 nights, then pound it with equal quantity of barley, wheat, māṣa, atasi leaves. Take one eighth part of the clay (prepared at first) and mix it with cocoanut water for 10 days. Then mix juice of Śrīveṣṭa, Guggulu,

Kundurika, and Sarjā in equal parts and rub with it $\frac{1}{16}$th part of the mud along with curd". In this way various other things were to be mixed with remaining portion of the clay till the whole lump is ready for use (Details too many to be mentioned).

The clay for images thus was made very strong, so that the image might last long. The prescriptions in the Hayaśīrṣa and Samarāṅgaṇa may indicate that material to be a kind of stucco, as clay was mixed with iron and lime. But the Śilparatna method shows that images made purely of clay, might also be permanent.

IV. Grounds of Painting (Bhūmibandha)

It is mentioned in the Śilpa texts to be a wall, a plank (Paṭṭa of stone or wood) and canvas. The Hayaśīrṣa Pañch quoted in the Haribhaktivilāsa also refers to paintings of images on Pātra (an earthen vessel). The available texts prescribe the methods of polishing the wall and then the preparation of a kind of paste or plaster (earth or lime) which was to be coated on the wall. Paintings were to be made on this plaster.

Cullavagga (V.II) "I allow you the use of white-wash and blacking and red colouring and wreathwork and creeper work.

(VI. 3) "I allow the use in Vihāras, of white-wash, black colouring and red colouring. (To make the white-wash lie on the walls), I allow the use of Ikkāsa (slime of trees) or of paste (Piṭṭha maddana)". (To make the colouring matter of red chalk adhere to the wall), "I allow the use of a paste made of mustard seed and of oil of bees-wax. You are not to have imaginative drawings painted or figures of men and women".

Vishṇudharmmottaram (III, Ch. 40)

Brick powder and clay (one third the brick powder) to be mixed in equal parts with saffron, oil, gumresin,

bee's wax, liquorice, molasses and mudga. Add to it burnt myrabolan, astringent made of bel-tree (two to one) and proportionate amount of sand. Drench it again with moist split pulse dissolved in water. Thus a plaster is made to be placed on the wall. Another coating of this plaster may be used along with resin of Śāla tree and oil.

Samarāṅgaṇa Sūtradhāra (Ch. 72) (Text corrupt)

A Kalka (paste) is to be made of several things (cannot be read or understood). Then a Piṇḍa (lump) is to be made of and dried in the sun. Rub it seven times over the ground. Or put the Bandhana into the abovementioned Kalka the proportion of which varies in different seasons. Besmear it with hair-brush after each layer becomes dry. This kind of Bhūmibandha is called "Śikṣikābhūmibandha"—meaning perhaps the preparation of the ground for apprentices.

For the walls (Kudyabandhana) another prescription:—juice of Snuhī or Vāstukushmāṇḍa, to be mixed with apāmārga and sugarcane and kept for 7 nights. Mix the juice (decoction) with Śimśapā, Nimba, triphalā, Vyādhi, Ghāta and Kuṭaja. The wall should then be washed over with that decoction, Kshāra and sea-salt. Fine earth free from big pebbles should then be collected and powdered with double quantity of (something not clear) and then mix it with juice of Kakubha, māṣa, Śālmalī and Śrīphala. The whole then should be mixed with sand and applied on the wall as thick as elephant's skin.

Another kind of coating will be the power of Kaṭaśarkarā mixed with the decoctions mentioned above. This should be coated three times on the wall.

Pattabandhana

Collect seeds of Bimba or Sāli rice. Any one of them should be ground and boiled in a vessel. Then coat this on the Paṭṭa. Or the Paṭṭa (Or Paṭa ?) may be coated with Kaṭaśarkarā mixed with the decoction prescribed before.

There is another method for Paṭṭa (or Paṭa). Kaṭarśarkarā should be mixed with Tālapaṅka and the decoction as noted before, and should be applied three times.

(The whole text is so corrupt that just only a vague idea is given here. Even we cannot say definitely whether Paṭṭabandha refers actually to Paṭṭa or Paṭa).

Mānasollāsa

A wall covered with Sudhā should be prepared for painting in this way. Buffaloe skin should be boiled in water till it is soft as butter. Place it on (or make out of it) several sticks and let it dry. This is called a Vajralepa. Mix it with white earth and coat it three times on the dry wall. Powder of conchshell mixed with the Vajralepa should be coated on the wall till it becomes brilliant. The white metal known as Naga, from the Nilgiri hills should be ground on a stone and mixed with the Vajralepa and then should be applied slowly and mildly (on the wall).

Aparājitaprracchā (Ch. 23)

Preparation of the Paṭṭa. For practising paintings, the paṭṭa should be made of some trees (i.e. wooden plank). For painting on harder materials (walls), the prescription is as follows:

Bricks looking (black) like iron, due to being burnt in strong fire, and which has in it many holes, should be cut and powdered like fine Kajjala made from the flame of a lamp. Powder of Khala with wheat should be put in Takra (curd mixed with water). The thing that arises after some time should be filtered with a fine cloth and boiled in mild fire slowly. When it assumes a hard pasty form, it becomes a sort of Vajralepa. Now rub the Paṭṭa with this paste and the fine brick dust. After two fortnights, it becomes a fine coating. Thus the Paṭṭabandhana should be made for painting purposes.

Śilparatna (Ch. 46)

The wall should be first coated with Sudhā as described before and according to aforesaid method ("Sudhā", Śilparatna, Ch. 14). Or conchshells should be burnt and powdered with logs of wood. One fourth of it (something lost in text, or of Sudhā) should be mixed with decoction of Mudga and Laba (hair of cow's tail or a portion of the decoction). Sprinkle guḍa water on that powder mixed with sand of ¼ quantity of the powder. Then mix pressed Kālāgni (Rudrāksha with five faces) and ripe banana of ¼ quantity (like Sudhā) and cook it in a vessel, and then press (marda) it well. After lapse of three months, grind it on a stone along with guda water. Grind it till it assumes a butterlike form.

Then clear the wall, make it plain with fine (sharp) and loose fibres of cocoanut, drench it with guḍa water and leave it for a few days. The paste of Sudhā should be coated slowly and repeatedly on the wall with the back part of a spoon and with cocoanut fibres drenched in pure water. When the coat is dry, apply on it colour for the painting.

In case of a Phalaka (Paṭṭa wooden plank) make it bright by chisel and coat it with colour; for Sudhā should not be applied to Phalakas etc. [But see other texts for stone slabs (Paṭṭa)].

V. Symbolism of Implements and Vāhanas of Images of Gods

Kāla's Chariot (Atharvaveda, XIX. 53)

"Time (Kāla) is the horse with seven reins. Sages inspired with holy knowledge mount him. His chariot wheels are all the worlds of creatures. This Time hath seven rolling wheels and seven naves; immortality is the chariot axle".

Brahmā's Chariot (Mahabharata, XII. 236)

"Jīva is the Ratha which shines in Brahmaloka. Dharma is the Upastha (seat). Hrī is the Varutha (cover). Upāya

and Apāya are the Kuvera (yoke poles). Apāna is the axle, Prāṇa is the Yuga, Prajñā is Āyu. Jīva is the Bandhana; Chetanā is the Vandhura, Āchāra is the Grahanemi. Darśana, Sparśa, Ghrāna and Śravaṇa are the four horses. Prajñā is the Nābhi, Sarvatantra is the whip and the charioteer is Jñāna. Kshetrajña is seated therein. Śraddhā and Dama are at the front. Tyāga is the best follower and Dhyāna is the gain acquired. Two representations of such chariots with four horses may be associated with Brahmā, as they are accompanied by a 'Swan at the back' ('Cult of Brahmā', page 176 and' Indian Archaeology', 1954-55; Catalouge of Patna Museum, Fig. 52).

Sūrya's Chariot (Purāṇas)
Vishnu Dharmmottara (Ch. 67).
7 horses = 7 metres (Cchandas).
Matsya Purāna (Ch. 125).
Horses = Cchandas (Metres).
Nābhi of the chariot = day
Ara = Samvatsara. Nemi = 6 seasons.
Varutha = night. Dhvaja = Hot season.
(Cf. Agni Purāṇa, Ch. 120, Verses 21ff).

Vishṇudharmmottara
7 Swans of Brahmā = 7 regions.
Garuḍa of Vishṇu = Mind.
Bull of Śiva = Divine Dharma of 4 feet.
Elephant of Indra = Wealth.
Lion in the banner of Sūrya = Dharma.
Buffaloe of Yama = Loss of consciousness or death.
Seven swans of Varuṇa = Seven seas of the world.
Makara = Friendship.
Four parrots of Agni = 4 vedas.
Camel of Virūpākṣa = great delusion.
Four elephants of Earthgoddess = 4 Dighastis.
Lakshmī's elephants = exalted rank.
Ten horses of moon = 10 quarters.

Makara of Gaṅgā = Virility. Tortoise of Yamunā = appropriate moment.

[For animals on Asoka pillars, see Author's 'The Cult of Brahmā" Ch. V].

Implements or hands

4 Arms of Brahmā = four quarters.

His Kamaṇḍalu = holds premieval water from which everything springs. Rosary (Akshamālā) = Kāla.

8 arms of Vishṇu = 8 quarters.

Chakra = Sun or Puruṣa or air.

Gadā = Moon or Prakṛiti or Heat.

Śaṁkha = Sky. Padma = water.

The implements of Vishṇu are similarly explained as the four elements in the Vishṇu Samhitā (Ch. 98).

Hala of Samkarṣaṇa = Time; Gadā = death.

Shield of Aniruddha = Covering for Ajñāna.

Sword of Aniruddha = renunciation.

Indra's elephant goad = command.

Thunder bolt = anger.

Lotus in Varuṇa's hand = law of Brahmā.

Noose = The fetters of the world.

Mace of Kuvera = administration of policy or Heat (of Vishnu).

Spear = Power. Conch = treasure or sky.

Wheel of Vishnu = Dharmachakra, Kālachakra or Bhāchakra (Zodiac).

Books = Śāstras, Vedas.

Staff (of Virūpākṣa) = death.

Conch and Lotus of Lakshmī = 2 seas.

VI. Synonyms of Units of Measurements (Aṅgula)

II. *Hayaśīrsa* :

2 Aṅgulas = Kalā, Golaka, Netra.

Tārā = $\frac{1}{3}$ Netra (or $\frac{2}{3}$ Aṅgula)

I. *Arthaśāstra of Kauṭilya*:

8 Paramānu = 1 Particle Rathachakra Viprut.

8 Particles = 1 Likshā.

III. *Piṅgalāmata*

2 = Netra. 3 = Guṇa.
8 = Vasu. 9 = Triguṇa.
10 = Vāmā Paṃkti.
6 = Ritu.
12 = Māsa, Ravi (Āditya).

I

8 Likshās = 1 Yuka.
8 Yukas = 1 Yava.
8 Yavas = 1 Aṅgula.
12 Aṅgulas = 1 Vitasti or (Chhāyāpurusha).
2 Vitastis = 1 Aratni.
108 Aṅgulas = 1 Paurusha.
2 Vitastis plus 4 Aṅgulas = 1 Kishku.

IV. *Atri Saṃhitā* (cf. Vaikhānasāgama quoted by Banerjee)

1. Aṅgula = Mātrā, Tattva, Uktā, Mūrti, (Viśvambhara, Indu, Moksha).
2. Aṅgulas = Āśvi, Golaka, Netra, Kalā.
3. Aṅgulas = Agni, Madhyama, Rudrāksha, Sahaja.
4. Aṅgulas = Veda, Āśramaka, Varṇa, Bhāga, Tāraka, Bandhuka, Pratiṣṭhā.
5. Aṅgulas = Supratiṣṭhā, Mahat, Bhūta, Tīrtha, Ākshā (?).
6. Aṅgulas = Samaya, Stvaṅga (?), Gāyatrī, Rasa, Karma.
7. Aṅgulas = Muni, Abdhi, Giri, Loka, Rohiṇī, Ushṇik, Samātṛikā, Prānāyāma, Pātāla.
8. Aṅgulas = Vasu, Riddhi, Anushṭub, Aiśvarya, Lokapāla, Dikgaja, ? ? = 9 kinds.
9. Aṅgulas = Brahmā, Dharma, Graha, Dvāra, Vṛihati.
10. Aṅgulas = Paṃkti, Avasthā, Avatāra, Sahejya (?).
11. Aṅgulas = Trishṭub, Rudra.
12. Aṅgulas = Mukha, Tāla, Yama, Arka, Kṛicchra, (Rāśi, Yagati).

V. *Ī-Ś-G-Paddhati*

1. Aṅgula = Indu, Khamaṃśa, Mātra.
2. Aṅgulas = Kilaka (?), Akshi, Golaka, Paksha.
3. Aṅgulas = Kalā (?).

4. Aṅgulas = Bhāga.
12. Aṅgulas = Mukha, Tāla, Vitasti.

VI. Measurements of Eleven Kinds

Īśāna-Śivagurudeva-Paddhati	*Mānasāra* (12 kinds)
In proportion to Linga	In proportion to Phallus
,, Garbha	,, Main Visṇu image (?)
,, Dvāra	,, Garbha
,, Stambha	,, Harmya
,, Adhiṣṭhāna	,, Door
Kishku	,, Vaṃsa
Tāla	,, Basement
Mulāṅgula	,, Pillar
Mānāṅgula	Hastā
Height of Yajamāna	Tāla
	Yajamāna—Aṅgula

APPENDIX I

TĀLA IN THE TEXTS

1. Matsya Purāṇa, Ch 258

(a) स्वकीयाङ्गुलिमानेन मुखं स्याद्द्वादशाङ्गुलं
मुखमानेन कर्त्तव्या सर्व्वावयवकल्पना ॥

Do as quoted in Harkbhakti—Same.

(b) प्रतिमामुखमानेन नवभागान प्रकल्पयेत् ॥

V. 44 स्तनग्रीवान्तरं प्रोक्तमेकतालं स्वयम्भुवा ।

V. 45 द्वितालञ्चापि विस्ताराद्वक्षःस्थलमुदाहृतम् ।

2. Narādiya as quoted in Harıbhakti—
बिम्बमानं तु लवधा प्रोच्छ्यात् संविभज्य वै
भागं भागं ततो भूयो भवेद्द्वादशधा द्विज
तदङ्गुलं स्याद्बिम्बस्य इति

3. Hayaśırṣa as quoted in Haribhakti—
अभिप्रेतप्रमाणन्तु नवधा प्रतिभाजयेत्
नवमे भास्करैर्भक्ते भागः स्वाङ्गुलमुच्यते ॥

4. Hayaśirṣa Saura Kāṇḍa—

Ch. 21—नवाष्टसप्तभागानि कुर्यान्मूर्त्ति विशेषतः
उत्तमा दशतालाच्चा नवताला तु मध्यमा
अष्टताला कनिष्ठा स्यात् स्त्रियश्चैवाष्टतालिका
एवं ज्ञात्वा प्रमाणन्तु प्रतिमां प्रविभाजयेत् ॥

Ch. 22—(ostensibly दशताल images as mentioned in Ch. 23)
कल्पितं रूपकायामं दशधा परिभज्य च
भागस्य द्वादशोभागः स्वाङ्गुलः परिकीर्त्तितः ।
तेनाङ्गुलप्रमाणेन भागस्य द्वादशाङ्गुलः ।
द्व्यङ्गुलं तु कला प्रोक्ता * * *
मुखं सप्तकलं कुर्यात विस्तारायामतः समं ।

5. *Agni Purāṇa*, Ch. 44
शिलां शिल्पीतु नवधा विभज्य नवमेऽंशके
सूर्यभक्तैः शिलायान्तु भागं स्वाङ्गुलमुच्यते

द्व्यङ्गुलं गोलकं नाम्ना etc.
मुकुटं तालमात्रंस्यात् तालमात्रं तथा मुखं etc.
cf. Bhaṭṭotpala's commentary on face of the image

6. Piṅgalāmatam
तेषां यत दीर्घमानंस्यात् विभज्य नवभागिका
षष्ठेत्रं तु भवेत्तालं पर्यायं तस्य चोच्यते
तालं मुखं वितस्ति च प्रादेशार्द्धकरैव च etc.
It prescribes 45 cubits (or "5 or 9" cubits) as the highest size of images.

7. *Brahmayāmala Tantra*
अङ्गुलानि भवेत्तालं द्वादशाश्च प्रमाणतः
दिव्याधिक=एकादशताल
दिव्य=मुखं सप्तकलं ज्ञेयं मस्तकात् तत्प्रमाणतः
दिव्यादिव्य—नवतालप्रमाणेन दिव्यादिव्यं प्रकीर्तितं।

8. *Bṛihat Saṃhitā*
V. 4 स्वैरङ्गुलप्रमाणैर्द्वादश विस्तीर्णमायतञ्चमुखम्।
नग्नजिता तु चतुर्दश दैर्घ्येण द्राविडं कथितम्॥
V. 14 द्वादश तु चित्रकर्मणि॥

9. *Nagnajit* quoted by Bhaṭṭotpala—
द्व्यङ्गुला केशरेखैवं मुखंस्यात षोडशाङ्गुलम्
V. 4 विस्तीर्णं द्वादश मुखं दैर्घ्येण च चतुर्दश
आङ्गुलानि तथा कार्यं तन्मानं द्राविडं स्मृतम्॥

10. Vishnudharmottara—12 Aṅgulas=a Tāla. The face of image should be 12 Aṅgulas wide.

11. *Atri Saṃhitā*, (Ch. 22)
Ch. 22 ध्रुवाद्या प्रतिमाः सर्व्वाः देहलब्धाङ्गुलेन वै
then synonyms .—
मुखं तालं यमं चार्कं कुच्छं च द्वादशाङ्गुलम्।
Ch. 23 In Daśatāla images
पादमारभ्य मूर्धान्तं सविंशतिशताङ्गुलम्।

12. Mānasollāsa

वितस्तिस्ताल उच्यते ।
तालस्तु मुखमानस्यात: व्यवहाराय कोविदैः ।
केशान्ताद्धनुपर्यन्तं मुखं ताल इतिस्मृतम् ॥
स्यात् द्वादशाङ्गुलं वक्त्रं तत्स्वरूपस्यमानतः

13. *Ī-Ś-G-Paddhati*, Paṭala, 41-47

प्रतिमाकरणं तत्तद्देहलब्धाङ्गुलेन तु ॥
सिध्येत् तत्रोच्यते पूर्वमुत्तमं दशतालकम्
तदुत्सेधे चतुर्विंशत्यधिकं शतभागिके ॥
एकांशो देहलब्धात्मकमङ्गुलं तदथाष्टधा
विभज्य विद्यादेकांशं यवमेवं परत्र च ॥
मध्यमे दशताले तु सविंशतिशतांशतः
सविकारशतांशोंऽशः कनिष्ठदशतालके
अष्टोत्तरशतांशोंऽशो नवतालोत्तमेङ्गुलम्
स वेदांशशतांशोंऽशो नवताले तु मध्यमे
शतांशोंऽशोऽङ्गुलं ज्ञेयं कनिष्ठनवतालके
षण्णवत्यंशकोंऽशः स्याच्छ्रेष्ठे तु वसुतालके
प्रतिवेदाङ्गुलह्रासादेतन्मध्याधमे स्मृते ।
स्वस्वतालविभागेन सप्ततालादिषु क्रमात्
एकतालात्मकं विद्यात् देहलब्धाङ्गुलं पृथक् ।
इन्दु खमंशो मात्रं चाप्यङ्गुलं च समंस्मृतम्
कीलकं च कलाभागः स्यात् द्वित्रिचतुरङ्गुलम्
अक्षिगोलकपक्षास्तु द्व्यङ्गुलस्यभिधायका:
मुखं तालं वितस्तिश्च द्वादशाङ्गुलवाचकम् ॥

14. *Śilparatna*, Pt. II, Ch. IV

विभज्यर्काङ्गुलं तालं गोलकं वा कलां तथा
विदिताद्व्यङ्गुलं मानमङ्गुलाष्टांशकं यवम् ॥

Also 10 Tālas=124, 120, 116
4 Aṅgulas less in every Tāla.

15. *Kāśyapasilpa*, Paṭala 50

Uttama Dasatāla=124 Aṅgulas
भानुपंक्ति, अङ्गुल=मध्यम (?) अधम=११६
नवताल—112 Aṅgulas, 108, 102(4?)
क्रमात् वेदाङ्गुलं हरं ॥

16 *Mayaśāstra*
उत्तमे नवताले तु मस्तक चतुरङ्गुल
मुख द्वादशमानेन स्यात्ग्रीवाचतुरङ्गुला ॥

17 *Śukranīti*, IV 4 81
स्व स्व मुष्टेश्चतुर्थांशो ह्यङ्गुल परिकीर्तितम् ।
तदङ्गुलैर्द्वादशभिर्भवेत् तालस्य दीर्घता ॥
V 89 नवतालप्रमाणे तु मुख तालिमित स्मृतम् ।
V 86 87 क्रूरा द्वादशताला स्युर्ह्यशीर्षाश्चयस्तथा
ज्ञेया षोडशताला तु पैशाची वासुरी सदा etc
V 88 दशताल कृतयुगे त्रेतायात् नवतालिका ।
अष्टताला द्वापरे तु सप्तताला कलौस्मृता ॥
V 182 सप्ततालादिमानहृपि मुख स्यात् द्वादशाङ्गुलम् ।
V 193 त्रयोदशाङ्गुल ज्ञेय मुखञ्च हृदय तथा ।
उदरञ्च तथा वस्तिर्दशतालेषु सर्व्वदा ॥

Arthasastra, Book II, Ch XV
108 Angulas = 1 Garhapatya Dhanus
or
1 Paurusha, a measure used in building sacrificial altar
12 Angulas = 1 Vitasti or 1 Chhāyāpurusha i e the length of the shadow cast by a Samku or gnomon, 12 Angulas high
[The image takes the place of the altar and as the altar is 108 Angulas high, so 108 Angula image i e the Uttama Navatāla image was the most popular one]
The Chhayāpurusha was 12 Angulas The face of the image is this Chhayā of the Purusha and hence this was also 12 Angulas]

18 (Ātreyatilaka) *Pratimāmānalaksana*
V 2½ द्वादशाङ्गुलि तालञ्च वितस्तिर्मुखमेव च ।
V 6 एकताल मुख कुर्याद्विस्तारञ्च तथैव च ।

19 Vaikhānasāgama quoted by Banerjee—
वेरोत्सेध तत्तालवशेन विभाज्यै कार्या
देहलब्धाङ्गुल तदष्टांश यवमिति । Cf शिल्पिरत्न ।

20. Devatāmūrtiprakaraṇam (Ch. 2) and Rūpamaṇḍaṇ

From '1' to' 16' Tālamana—description of Madhya Saptatāla and Madhya Ashtatāla which are not generally found in texts (cf. Śukranīti).

The Matsya Purāṇa (Cal. Edition, Ch. 258, V. 22-23) prescribes the highest size for images to be "Ā Soḍaśā tu Prāsāde" i.e. 16 Vitastis in temple. Evidently it comes to 16 Tālas. [But Banerjee (Second Edition, p. 322) reads the line as "A Soḍasā tu Prāsādaiḥ" and explains it as "1/16 part of the whole height of the temple". As the size is being described in terms of the image, the proportionate size is not perhaps meant here)].

21. *Aparājitapracchā*

Ch. 210 अष्टोत्तरशतं संख्यैरङ्गुलैरुच्छ्रयो भवेत्
नवताल स विज्ञेयो व्यवहारे प्रसिद्ध्यति।

Ch. 225. In Chitrapratimā—upto 16 Tālas prescribed.
Ch. 226. of Bhairava, Tāla should be 21—each Tāla of 12 Angulas (so 252 Aṅgulas)—Highest mentioned in any book.

TABLE IA

NĀGARA TEMPLES

	I	II	III	IV	V	
	Viśvakarma Prakāśa	Matsya Purāna	Brihat Saṃhitā	Bhaviṣya Purāṇa	Samarāṅgaṇa Sūtradhāra	
					A. (Ch. 63)	B. (Ch. 60, Śrīkūṭādi)
1	Meru	Meru	Meru	Meru	Meru	(1) Meru
2	Mandara	Mandara	Mandara	Mandara	Mandara	(2) Mandara
3	Kailāsa	Kailāsa	Kailāsa	Kailāsa	Kailāsa	(3) Kailāsa
4	Vimāna-cchanda	Vimāna-cchanda	Vimāna-cchanda	Vimāna-cchanda	Vimāna-cchanda	...
5	Nandivar-dhana	Nandivar-dhana	Nandivar-dhana	Nandivar-dhana	Nandivar-dhana	(4) Nandi-bhadra
6	Nandana	Nandana	Nandana	Nandana	Nandana	(5) Nandyā-Varta
7	Sarvatobhadra	Sarvatobhadra	Sarvatobhadra	Sarvatobhadra	Sarvatobhadra	(6) Sarvato-bhadra
8	Vṛiṣa	Vṛiṣa	Vṛiṣa	Vṛisa	Vṛiṣa	...
9	Siṃha	Siṃha	Siṃha	Siṃha	Siṃha	...
10	Gaja	Gaja	Kuñjara	Kuñjara	Gaja	...
11	Kumbha	Kumbha	Ghaṭa	Ghaṭa	Kumbha	(7) Kumbhaka
12	Samudraka	Samudraka	Samudga	Samudga	Samudra	...

	Viśvakarma Prakāśa	Matsya Purāṇa	Bṛihat Saṃhitā	Bhavisya Purāṇa	Samarāṅgaṇa Sūtradhāra A.	Samarāṅgaṇa Sūtradhāra B.
13	Padmaka	Padma	Padma	Padma	Padmaka	...
14	Suparṇa	Garuḍa	Garuḍa	Garuḍa	Garuḍa	...
15	Haṃsa	Haṃsa	Haṃsa	Haṃsa	Haṃsa	...
16	Vartula	Vartula	Vṛitta	Vritta	Vartula	...
17	Chaturasra	Chaturasra	Chatushkoṇa	Chatushkoṇa	Chaturasra	...
18	Ashṭāsra	Ashṭāsra	Ashṭāsra	Ashṭāsra	Ashṭāsra	...
19	Soḍaśāsra	Sodaśāsra	Soḍaśāsra	Soḍaśāsra	Soḍaśāsra	...
20	Mṛigarāja or	Mṛiga	...	...	Mṛigarāja	...
	Gṛiharāja or	or	Guharāja	Gṛiharāja	or	(8) Gṛiharāja
	Balabhī-cchanda	Balabhī-cchanda	...	...	Balabhī-cchanda	...
20B	Śrīvṛiksha	Śrīvṛiksha	...	...	Śrīvṛiksha	...
						(9) Śrīkuṭa
						(10) Śrīmukha
						(11) Śrīdhara
						(12) Varada
						(13) Priyadar-śana
						(14) Kulanan-dana

Viśvakarma Prakāśa	Matsya Purāna	Brihat Saṃhitā	Bhaviṣya Purāṇa	Samarāṅgaṇa Sūtradhāra
				B.
				(15) Antarīksha
				(16) Pushpā-bhāsa
				(17) Viśālaka
				(18) Saṃkīrṇa
				(19) Mahā-nanda
				(20) Saubhāgya
				(21) Vibhaṅga
				(22) Vibhava
				(23) Vibhatsa
				(24) Śrī-tunga
				(25) Mānatunga
				(26) Vāhyodara
				(27) Niryūho-dara
				(28) Samodara
				(29) Bhadra-koṣa
				(30) Chitrakuṭa
				(31) Vimala

Viśvakarma Prakāśa	Matsya Purāna	Brihat Saṃhitā	Bhavişya Purāna	Samarāṅgaṇā Sūtradhāra B.
				(32) Harshana
				(33) Bhadra Saṃkīrṇa
				(34) Bhadra-viśāla
				(35) Bhadra-vishkambha
				(36) Ujjayanta

N.B.—Though the first four works do not definitely call these temples as Nāgara, that they are so is quite evident from work No. V(A). Temples under V(B) are later ones.

Table IB

LATER NĀGARA AND LĀTA TEMPLES

	I	II	III	IV
	Hayaśīrsa Pañcharātra	Agni Purāṇa	Garuda Purāna	Samarāṅgana Sūtradhāra (Ch 49) (Also See T IA)
		A Vairaja Group (Square)		
1	Meru	Meru	Meru	
2	Mandara	Mandara	Mandara	
3	Vimana	Vimāna	Vimāna	Vimāna
4	Nandivardhana	Nandivardhana	Nandivardhana	Nandivardhana
5	Nandana	Nandana	Nandana	Nndyāvarta
6	Sarvatobhadra	Sarvatobhadra	Sarvatobhadra	Sarvatobhadra
7	Bhadra	Bhadra	Bhadra	Bhadra
8	Ruchaka	Ruchaka	Ruchaka	Ruchaka
9	Śrivatsa	Śrivatsa	Srivatsa	
10				Siṃhapanjara
11				Hasti
12				Gajayūthapa
13				Śritaru
14				Śrikuta
15				Muktakona
16				Ushnisha
17				Śālā
18				Avataṃsa
19				Svastika
20				Kshitibhushana
21				Bhujaya
22				Vijaya
23				Pramadāpriya

	I	II	III	IV
24	...	...	...	Vyāmiśra
25	...	...	...	Kuvera
26	...	...	...	Vasudhādhara
27	...	...	...	Chitrakuṭa

N.B. The Samarāṅgaṇa Sūtradhāra mentions 24 names, 6 only common to the other works. Nos. 1 to 6, 10, 11, 12 may be compared to Nos. 1, 5, 7, 9, 10 in Table IA. No. 14 is similar to No. (9) of Table IA, VB.

B. Pushpaka Group (Rectangular)

1	Valabhī	Valabhī	Valabhī	...
2	Griharāja	Griharāja	Griharāja	Griharāja
3	Mandira	Mandira	Mandira	...
4	Brahmma-mandira	Brahmma-mandira	Brahmma-mandira	...
5	Bhuvana	Bhuvana	Bhuvana	...
6	Prabhava	Prabhava	Prabhava	Prabhava
7	Śivikā	Śivikā	Śivikā	Śivikā
8	Śālā	Śālā	Śālā Griha	Dvi-Śāla
9	Viśāla	Viśāla	Viśāla	Viśāla
10	...	..	..	Amala
11	.	..	..	Bibhu
12	...	..	...	Bhava
13	.	..	...	Mukhaśāla
14	...	...	...	Saumukhya

N.B. Nos. 1 & 2 may be compared to those in T. IA.

C. Kailāsa Group (Circular)

1	Valaya	Valaya	Valaya	Valaya
2	Dundubhi	Dundubhi	Dundubhi	Dundubhi
3	Padma	Padma	Padma	Padma
4	Mahāpadma	Mahāpadma	Mahāpadma	...

29

	I	II	III	IV
5	Mukuli	Vardhani	Mukuli	...
6	Ushnisha	Ushnisha	Ushnīshī	...
7	Śaṁkha	Śaṁkha	Śaṁkha	...
8	Kalasa	Kalasa	Kalasa	...
9	Śrīvṛiksha	Kha (Śrī)—Vṛiksha	Guvāvṛiksha	...
10	...	..	. .	Kurma
11	...	.	...	Prānta
12	...	..	.	Kānta
13	...	.	...	Chaturmukha
14	...	...	.	Ulupika
15	...	...	...	Manḍuka
16	...	...	...	Tālīgṛiha

N.B. Nos. 1, 3 & 8 may be compared to T. 1A.

D. Manika Group (Oval)

	I	II	III	IV
1	Gaja	Gaja	Gaja	...
2	Vṛisha	Vṛishabha	Vrisha	...
3	Haṃsa	Hamsa	Haṃsa	...
4	Garuḍa	Garuda	Garuḍa	. .
5	Riksha	Riksha-nāyaka	Riksha-nāyaka	...
6	Bhuṣana	Bhuṣaṇa	Bhūmukha	...
7	Bhūdhara	Bhūdhara	Bhūdhara	...
8	Śrījaya	Śrījaya	Śrījaya	...
9	Pṛithivī-dhara	Pṛithivī-dhara	Pṛithivī-dhara	..
10	...	.	...	Āmoda
11	...	.	..	Raitika
12	...	..	...	Tuṅga
13	...	.	...	Chāru
14	...	..	...	Bhuti
15	...	..	. .	Nishevaka
16	...	...	...	Nishedha

	I	II	III	IV
17	...	...	...	Siṃha
18	...	...	...	Suprabha
19	...	...	...	Lochanotsava

N.B. Nos. 1, 2, 3, 4, & 17 may be compared to T. IA.

E. Tṛivishṭapa Group (Octagonal)

1	Vajra	Vajra	Vajra	Vajra
2	Chakra	Chakra	Chakra	...
3	Svastika	Svastika	Mushṭika	...
4	Vajra-svastika	Vajra-svastika	Vakra	...
5	Chakra-svastika	Chakra-svastika	Chakra-svastika	...
6	Khaḍga	Khaḍga	Khaḍga	...
7	Gadā	Gadā	Gadā	
8	Śrīkaṇṭha	Śrīkaṇṭha	Śirvṛiksha(?)	.
9	Vijaya	Vijaya	Vijaya	...
10	..	...	..	Nandana
11	.	. .	. .	Śaṁku
12	.	...	...	Mekhala
13	...	..	.	Vāmana
14	...	...	...	Laya
15	...	...	..	Mahāpadma
16	...	...	...	Haṃsa
17	...	...	...	Vyoma
18	...	...	...	Chandrodaya

N.B. The Samarāṅgaṇa contains 64 names of which very few (15) are similar to those in other works. This list is therefore perhaps of the Lāṭa temples and not Nāgara ones.

TABLE IC
EARLY DRĀVIDA TEMPLES

	I Sūprabhedāgama	II Iśānaśiva-Gurudeva-Paddhati	III Śilparatna (A)	IV & V I-Ś-G- Paddhati (B) Śilparatna (B)	VI Vaikhānasāgama	VII Śukranīti	VIII Atri Saṃhitā	Remarks—Comparison with Nāgara temples
1	Meru	Meru	Meru			Meru		(See Table IA & B)
2	Mandara	Mandara	Mandara			Mandara		Do.
3	Kailāsa	Kailāsa	Kailāsa					Table I
4	Nandyāvarta				Nandyā-varta		Nandyāvarta	Table IA (6)
5	Nalina			Nalina	Nalina		Nalinaka	
6	Pralina			Parlina			Pranalinaka	
7	Parvata			Pravatākriti	Parvatākāra		Parvatākṛiti	Cf. T. IF
8	Himavān							
9	Śrikara	Śrikara	Śrikara			Śrikara	Śrivatsa	
10	Mahendra	Mahendra	Mahendra					
11	Śri Varta(?)							
12	Nila	Nila	Nila					
13	Nishadha	Nishadha	Nishadha					
14		Vṛishacchanda	Vrishacchanda				Vṛishabhākāra	T. IA (8)
15		Kumbha	Kumbha				Kumbhākāra	T. IA (71)
16		Padmakānta	Padmakānta		Padmākāra	Padmakuta	Padmākāra	T. IA (13)
17		Garuḍacchanda	Garuḍacchanda				Garuḍākāra	T. IA (14)
18		Haṃsacchanda	Haṃsacchanda					T. IA (15)
19		Merukūṭa	Merukūṭa					T. IA(3)
20		Kailāsa Kānta	Kailāsa-Kānta	Kailāsacchanda				
21		Jayāṅga	Javāṅga					
22		Vimala	Vimala					
23	Padmabhadra	Padmabhadra						

I	II	III	IV & V	VI	VII	VIII	Remarks
24	Rudrakānta	Rudrakanta	Rudracchanda				
25	Skandakānta						
26	Yogabhadra	Yogabhadra					
27	Mangala	Mangala					
28	Vindhva cchanda	Vindhya cchanda					
29	Vimalanga	Vimalanga		Vimalākriti			
30	Bhogicchanda	Bhogicchanda					
31	Saumukhva	Saumukhya					
32	Śrimandana	Śrimandana					
33	Lalitākanta	Lalitakanta	Lalitabhadra				
34	Śriviśala	Sriviśala				Nandiviśāla	
35	Vijaya	Vijaya			Vijava		
36	Sudarsana	Sudarśana					
37	Javamangala	Javamangala					
38	Chitrakuta	Chitrakuṭa		Silpa		Chitra Śilpa	
39		Bhadraś kha					
40			Sarvatobhadra	Sarvato- bhadra		Sarvatobhadra	T IA (7)
41			Chaturmukha	Chatur mukha		Chaturmukha	(cf T IB)
42			Viṣnucchanda				
43			Hastiprishtha			Hastipṛishtha	
44			Sivabhadra				
45			Śivacchanda				
46			Vritta bhadra	Vṛitta bhadra		Vritta Saubhadra	
47			Ashtanga			Ashṭānga	
48			Sri Pratishthita	Sri Pratishthita		Sri Pratishthita	
49			Srikānta				
50			Sricchanda				
51			Saubhadra				
52			Svastika	Svastika	Svastika	Svastika	

	I	II	III	IV (B)	VI	VII	VIII	Remarks
53				Samujjala				
54							Srimatasvastika	
55				IV B			Panjaramukha	
56				I S G D P (c)			Utpalaphullaka	
57					Bhadra		Bhadra	
58							Supaushtika	
59				Vritta	Vritta		Vṛtta	Table IA (16)
60							Sasivritta	
61							Somavritta	
62							Gandhara	
63							Gandhara panchaka	
64							Somacchanda	
65							Sriyavritta	
66				Visalaka			Viśāla	T IB (G B)
67							Brahma Vṛitta	
68				Chatusphuta	Chatusphuṭa	Chatusphuta	Chatusputa	
69							Anganākāra	
70							Somārdha	
71					Maha padma	Mahā padma	Mahāpadma	
72				Utpalapatraka	Udyoga padma		Ujjalapatraka	
73							Bahupatra	
74							Ghona	
75							Cchandavṛitta	
76								
77					Vedika		Vedika	
78							Siddhayoga	
79							Kuṭākara	
80							Vilokana	
81							Tilaka	
82							Vālenduka	
83				Kudya Vṛtta			Mastaka Sandhika Kodya Vṛitta	

	I	II	III	IV (B)	VI	VII	VIII	Remarks
84							Bhūtavahāra	
85				Yogakānta	Yogakānta			
86					Geha			
87					Diśasvastika			
88					Khaṇḍa-Harmya			
89				Prekshāgṛiha	Prekshā-gṛiha			
90				Mahārājāhvaya	Mahārāja-cchanda			
91					Sanairyoga			
92					A (?) tra-khaṇḍa			
93				Ganikāvisala	Ganikā-viśāla			
94					(These 26 only named out of 96 temples)	Ratnaśirṣa		
95						Dhātumāna		
96						Padmakośa		
97						Pushpa-haṃsa		
98						Mālyavān		T IF
99						Pariyātra		T IF
100						Rkshamāli		
101						Dyuman		
102						Chandra-śekhara		
103				Nāgāhvaya				
104				Bhāgacchanda				
105				Tṛikuṭaka			Tṛikuṭa	
106				Srīvardhana				
107				Padmagṛiha				

	I	II	III	IV (B)	VI	VII	VIII	Remarks
				Atyantakanta			Several others not similar to any others	
108				Bhanukanta				
109				Chandrakanta				
110				Kratuvardhana			Total 96	
111				Mantraputa				
112				Avantya				
113				Malusa				
114				Tantrikanta				
115				Karnabhadra				
116				Vijayanga				
117				Visalabhadra				
118				Karnasalaka				
119				Padmasana				
120				Indrakanta				
121				Sarvalalita				
122				Pratyantakanta				
123				Malagriha				
124				Prithuvivijaya				
125				Nandiviśala				Cf Orissa Temples
126				Sarvangasundara				
127				Cchava Griha				
128				Rativardhana				
129				Visālālaya				
130				Catuspādika				
131				Turangavadana				
132				Ganikāpindikā				
133				Syenacchanda				
134				Utpalagra				
135				Kukkuṭapucchaka				
136				Muṇḍaprasadaka				
137								

N B The comparison of this table will show that the classification found in II and III was the earliest one This was followed by those in I, IV, V and VI (Nalinadi Group) The latest classification in this Group is that found in IVB (I S G-Paddhati C) and No VIII

TABLE ID

LATER DRĀVIDA TEMPLES

	I Śilparatna(c)	II Mayamatam	III Kāśyapa	IV Mānasāra

I. STOREYED

1	Śrībhoga (and others not named)	Śrībhoga	Śrībhoga	Bhoga
2	...	Śrīviśāla Cf. T.IC	Śrīviśāla	Śrīviśāla
3	.	Vaijayanta	...	Vaijayanta
4	...	Svastivandha	Svastivandha	Svastivandha
5	...	Śrīkara Cf. T. IC	Śrīkara	Śrīkara
6	..	Hasti-pṛishṭha Cf. T. IC	...	Hasti-pṛishṭha
7		Skandakānta	...	Skandakānta
8	...	...	Śrībhadra	...
9	..	...	Vṛittakeśara	Keśara
10	.	...	Kalyāṇa-Sundara	

II. STOREYED

1	Svastika etc.	Svastika (Cf. T. IC)	Svastika	Svastika
2	...	Svasti Vandha	Svasti Vandha	..
3	...	Kailāsa (Cf. T. IC)	Kailāsa	...
4	...	Parvata (Cf. T. IC)	...	.

	I	II	III	IV
5	...	Kalyāṇa	Kalyāṇa-Sundara	...
6	...	Pasushṭika	...	Paushṭika
7	...	Pāñchāla	Pāñchāla	...
8	...	Vishṇu	Vishṇu	...
	...	Kānta	Kānta	
9	...	Sumaṅgala	Maṅgala (Cf. T. IC)	...
10	..	...	Svastika-bhadra	...
11	...	..	Śrīkara	Śrīkara
12	.	Gāndhāra (Cf. T. IC)	Gāndhāra	...
13	.	Hastiprishṭha	...	..
14	..	Manohara	Manohara	...
15	..	Īśvarakānta	...	.
16	...	Kuverakānta	Kuverakānta	...
17	...	Vṛitta Harmyaka	...	..
18		.	Viśvakānta	..
19	.	.	Śivakānta	..
20	...	...	Rudrakānta	...
21	...	...	...	Vijaya
22		..	...	Siddha
23	..	..	...	Antika
24	.	...	..	Adbhuta
25	..	.	...	Pushkala

III. Storeyed

	I	II	III	IV
1	Svastika etc.	Svastika	Svastika	...
2	...	Vimalā-kṛitika (Cf. T. IC)	...	...
				.
3		Vimāna	Vimāna	..
4	..	Vṛitta (Cf. T.I C)	...	.

	I	II	III	IV
5	...	Khaṇḍya Harmya (Cf. T. IC)	...	...
6	...	Nimnaka	...	...
7	...	Harmya	...	...
8	...	Hastipṛiṣṭha	Hastipṛiṣtha	...
9	...	Stambha-toraṇa	...	...
10	...	Gajapṛiṣṭha	...	...
11	...	Bhadra-koṣṭha	Bhadra-koṣṭha	..
12	...	Vṛittakuṭa	Vṛittakuṭa	...
13	...	Sumaṅgala	Sumaṅgala	...
14	..	Gāndhāra	Gāndhāra	..
15	...	Śrībhoga	Śrībhogāḍhya	..
16	...	...	Svastibhadra	...
17	...	...	Brahmakānta	Brahmakānta
18	...	. .	Vishṇukānta	...
19	...	...	Śivakānta	...
20	...	.	Rudrakānta	...
21	...	. .	Śuddha	...
22		. .	Śrīkanṭha	Śrīkānta
23	.	...	Śrīviśāla	...
24	. .		...	Āsana
25	. .	..	...	Sukhālaya
26	...	..	...	Keśava
27	...		...	Kamalāṅga
28	...	...	...	Merukānta
29	...	...	...	Kailāsa

IV. Storeyed

	I	II	III	IV
1	Samudra etc.	Samudraka	Subhadra (?)	...
2	...	Śrīviśāla	Śrīviśāla	...
3	...	Jayāvaha	Jayāvaha	...
4	...	Kapota-pañjara	...	...

	I	II	III	IV
5		Bhadrakūta		
6		Manohara		
7		Avantıka		
8		Sukhāvaha		
9			Śrīkānta	
10			Śrīmaṇdana	
11			Śrībhavanta	
12			Sarvadālaya	
13			Vāhya	
14				Vıshnukānta
15				Caturmukha
16				Sadāśıva
17				Rudrakānta
18				Īsvarakānta
19				Mañchakānta
20				Vedıkanta
21				Indrakānta

V Storeyed

	I	II	III	IV
1	Brahma kānta etc	(no names)	Brahmakānta	Brahmakānta
2			Prājāpatya	
3			Svayambhuva	
4			Bhadrakūṭa	
5			Janārdana	
6			Atıbhadra	
7			Sarvatobhadra (Cf T IC)	
8			Vırabhadra	
9				Aırāvata
10				Bhutakānta
11				Vıśvakānta
12				Mūrtıkānta
13				Yamakānta
14				Grıhakānta
15				Yajñakānta

VI. Storyed

	I	II	III	IV
1	Ambujāsana etc.	...	Ambujāsana	...
2	..		Susamkara	...
3	...	..	Bhadra (Cf. T. IC)	...
4	.	.	Śivabhadra	..
5	...	..	Nagendra	...
6	...	..	...	Padmakānta
7		.		Kāntāra
8	.	..	.	Sundara
9	.	.		Upakānta
10				Kamala
11			.	Ratnakānta
12			..	Vipulāṅga
13	.	.	..	Jyotishkānta
14	...	..		Saroruha
15	..	.		Vipulākṛitika
16	..	.	..	Svastikānta
17	...	.		Nandyāvarta (Cf. T. IC)
18	..			Ikshukānta

VII. Storeyed

1	Śrīcchanda etc.	...	Śrīcchanda	...
2	...	..	Samujjala	...
3	...	...	Śrīviśāla	...
4	...	...	Śrīkānta	Śrīkānta
5	...	...	Śrīpriya	Śrībhoga
6	...	...	Rudrakānta	...
7	...	...	Vṛittabhadra	...
8	...	...	Suvṛitta	...
9	...	...	Śivabhadra	...
10	...	...	Śivasaukhya	...

	I	II	III	IV
11				Pundarıka
12				Dharana
13				Pañjara
14				Āśramāgāra
15				Harmyakānta
16				Hımakānta

VIII Storeyed

	I	II	III	IV
1	Śıvacchanda etc		Śıvacchanda	
2			Vāgıśa	
3			Parvata	
4			Kaılasa	
5				Bhukānta
6				Bhupakānta
7				Svargakānta
8				Mahākānta
9				Janakānta
10				Tapaskānta
11				Śalyakānta
12				Devakānta

IX Storeyed

	I	II	III	IV
1	Vıjaya etc		Dharātala	
2			Lalıtabhadra	
3			Brahmakānta	
4			Pradeśa	
5			Śrīvardhana	
6			Supadma	
7			Krıta-Vardhana	
8				Saurakānta
9				Raurava
10				Chaṇḍıta

	I	II	III	IV
11	...	...	...	Bhuṣana
12	...	...	...	Vivrata
13	...	...	...	Supratikānta
14	...	...	..	Viśvakānta

X. Storeyed

1	(No names)	(No names)	Narakānta	..
2	...	..	Atyantakānta	...
3	...	...	Mantraḥpūta	...
4	...	...	Kānta	..
5	...	...	Īśvarakānta	..
6	...	...	...	Bhūkānta
7	...	.	..	Chandrakānta
8	...	...	...	Bhavanakānta
9	...	...	..	Antarīksha-kānta
10	...	...	...	Meghakānta
11		...	...	Abjakānta

XI. Storeyed

1	(No names)	(No names)	Brahmakānta	...
2	...	...	Vijaya	..
3	...	...	Sārvārhaka	...
4	...	...	Indrakānta	...
5	...	...	Gaṇikāśālaka	...
6	...	...	Indrakānta	.
7	...	...	Karma Viśāla	...
8	...	...	...	Chandra-kānta
9	...	...	...	Śambhukānta
10	...	...	...	Īśakānta
11	...	...	...	Yamakānta
12	...	...	...	Vajrakānta
13	...	...	...	Arkakānta

XII. STOREYED

	I	II	III	IV
1	(No names)	(No names)	(No names)	Pāñchāla
2	...	...	...	Drāviḍa
3	..	...	...	Madhya-kānta
4	...	.	...	Kaliṅgakānta
5		...	...	Virāṭakānta
6	...	..	...	Kerala
7	..	..	...	Vaṃśakānta
8		..	...	Magadha-kānta
9	...	...	...	Janakakānta
10	..	...	...	Gurjarakānta

N B. XIII to XVI storeyed temples are not mentioned in any work except in No. III which also does not contain the names of XII to XV storeyed temples.

XVI. STOREYED

1	...	Brahmakānta	.
2	.	Sāraswata	.
3		Pradeśa	.
4	.	Śrīkara	
5		Pārvatika	
6	.	Susambhava	.

TABLE IE

VAIRĀTI AND ORISSAN TEMPLES

Vairāṭi Samarāṅgaṇa	Orissan
1 Digbhadra	1 Mahāmeru
2 Śrīvatsa	2 Meru—See T. IA
3 Vardhamāna	3 Mandara—See T. IA
4 Nandyāvarta	4 Kailāsa—See T. IA
5 Nandivardhana	5 Dibidāna
6 Vimāna	6 Keśarī
7 Padma	7 Śrīvatsa—See T. IB
8 Mahābhadra	8 Nandivardhana—See T. IA
9 Śrīvardhamāna	9 Chitrakuṭa
10 Mahāpadma	10 Suvarṇakuṭa
11 Pañchaśāla	11 Padmaśila(?)
12 Pṛithivījaya	12 Kṛitidushana
	13 Ratnasundara
	14 Bihasta-Indra
	15 Kshetrabhuṣana
	16 Sarbāngasundara—cf. Sam. S. 59
	17 Śrītaru—See T. IB
	18 Nichasā
	19 Mulaśrī
	20 Haṃsa—See T. IA
	21 Dṛibidāna
	22 Garuḍa
	23 Laghu Vimāna
	24 Aṣṭāsri
	25 Padmākāra—See T. IA
	26 Kalpataru
	27 Ratnasāra
	28 Laghuṣeka
	29 Mādhabi
	30 Nāgari
	31 Kośali
	32 Birāṭi

33 Basanta
34 Surālaya
35 Aṣṭāsri (?)—cf. T. IA
36 Bahantisāra
37 Barabhi—cf. T. IA
38 Bihārāsara
39 Viśwakarmā
40 Drabibana
41 Indra
42 Niṣada
43 Duipadma
44 Kanihastha
45 Laghumandara
46 Mahādrāviḍa
47 Mulaśrīvatsa
48 Pūrṇaśāla
49 Subarṇakuṭa
50 Tṛipāṭi
51 Bṛishabha—See T. IA
52 Khaṇḍaśāla
53 Madhya
54 Mahābaḍabhi
55 Nanda Śreevatsa
56 Śrīvatsa Khaṇḍaśāla
57 Bahargamasāra

II. *Bhadra Group*

58 Bhadra—See T. IB
59 Mahābhadra
60 Bijayabhadra
61 Nalinibhadra
62 Medinī Vijaya
63 Keśarī
64 Keśara

III. *Khakhara Group*

65 Drāviḍā
66 Barabhī
67 Kośoli

TABLE IF

TEMPLES IN VISHṆUDHARMMOTTARAM

1 Himavān—cf. Suprabheda—Samarāṅgaṇa
2 Mâlyavān—cf. Śukranīti
3 Śṛiṅgavān
4 Āgāra
5 Bhavana
6 Gṛiha
7 Nishadha—cf. Suprabheda
8 Nīla—cf. Suprabheda
9 Cheta
10 Vindhya
11 Balabhī—cf. Mat. P. etc.
12 Vṛiddhida
13 Tṛiguṇa
14 Balabhī(?)
15 Śikhara
16 Turaga
17 Kuñjara—cf. Mat. P.
18 Yatheshṭa
19 Viśāla—cf. Hayśīrṣa
20 Bhadra—cf. Hayaśīrṣa
21 Dwārapāla
22 Samudra—cf. Mat. P. etc.
23 Śveta
24 Gandhamādana—cf. Samara. Sūtra Vimānādi 64 (Ch. 59)
25 Saumya(?)
26 Subhadra
27 Kamala—cf. Mat. P.
28 Aruṇodaya
29 Guha—cf. Bṛihat Saṃ.
30 Garuḍa—cf. Mat. P.
31 Sarva
32 Trailokya
33 Liṅga
34 Sarvakīṭa

35 Brahmmāṇḍa
36 Sāra—cf. Kāmikāgama
37 Chaturasra—cf. Mat. P. etc.
38 Sumekhala
39 Vimekhala
40 Tṛimekhala
41 Dhishṇya
42 Śalya
43 Budha
44 Indu
45 Gṛiha (?)
46 Bahubhūmika
47 Meru—cf. Mat. P.
48 Śuktimān
49 Mandara—cf. Mat. P.
50 *Pāriyātra—cf. Śukranīti*
51 Alaka
52 Vimāna—cf. Mat. P.
53 Nandana
54 Pañchata(ka)
55 Chatushkaka(?)
56 Tṛibhūmi
57 Dvıbhūma
58 Ekabhauma
59 Vṛıtta (Samudra?)—cf. Mat. P.
60 Nandī—cf. Mat. P.
61 Guharāja—cf. Mat. P.
62 Vṛisha—cf. Mat. P.
63 Haṃsa—cf. Mat. P.
64 Ghaṭa—cf. Mat. P.
65 Sıṃha—cf. Mat. P.
66 Maṇḍapa
67 Dvādaśāsri
68 Saḍaśrī
69 Aṣṭāsri—cf. Mat. P.
70 Kailāsa—cf. Mat. P.
71 Tṛıkuṭa—cf. S. Sutra, 56.64
72 Saumye

73 Rājarāja
74 Dharaṇīdhara—cf. Sam. Sūt. 56.58
75 Vimāna(?)
76 Surarāṭ
77 Ānanda
78 Suṣama
79 Prabhañjana
80 Viśwakarmā—cf. Orissan temples (No. 39)
81 Mahāsumana
82 Cchatra
83 Mṛidaṅga
84 Vajra—cf. Hayaśīrṣa
85 Lokapāla
86 Digvandha
87 Sāmānya
88 Suguha
89 Triguṇa
90 Nandaka—cf. Mat. P.
91 Ākāśani
92 Shoḍasāsra
93 Śamkha—cf. Hayaśīrṣa
94 Vaijayanta
95 Ambada
96 Maṅgala—cf. Īśāna-Ś-G-P.
97 Sarvatobhadra—cf. Mat. P.
3 more not described

Total 100

N.B. Almost all the 20 Nāgara temples are mentioned here. There are in addition several names similar to those of South Indian temples. I therefore think the list.to be mainly that of Nāgara temples of a later period.

TABLE II

MANDAPAS

Mānasāra	Maya-matam	Silpa-ratnam	Iśānaśiva Gurudeva	Sūprabheda	Dīpta Tantra	Viśvakarmā	Matsya Purāṇa	Samar-āngaṇa	Aparājita-Pracchā
Himaja	..	Brahmāsana	..		Parvata	Pushpaka	Pushpaka	Pushpaka	Pushpaka
Nishadaja	..	Srikara	..	.	Srikara	Pushpa-bhadra	Pushpa-bhadra	Pushpa-bhadra	Pushpa-bhadra
Vijaya	..	Sabhāranga	..	..	.	Suvṛitta	Subrata	Suprabha	Suprabha
Malayaja	..	Indukānta	..		Kailāsa	Amrita-nandana	Amrita-nandana	Amrita-nandana	Mriga-nandana
Parijātra	..	Vishnukānta	..	..	Keśara	Kauśalva	Kauśala	Kauśalya	Kauśalya
Gandha-mādana	..	Lalitabhadra	..	..	Śrībhoga	Buddhi-Saṃkirna	Buddhi-Saṃkina	Buddhi-Saṃkirṇa	Buddhi-Saṃkirṇa
Hemakuṭa	.. ..	Śrī-Pratishṭhita	Śrī Pratishṭhita	Śrī-Pratishthita		Gajabhadra	Gajabhadra	Gajabhadra	Gajabhadra
Daṇḍaka	..	Nandyāvarta	Nandyāvarta	Nandyāvarta	Śrikuta	Jayāvaha	Jayāvaha	Jayāvaha	Jayāvaha
Svastika	..	Svastika	Svastika		Śrīkaṇtha	Śrīvatsa	Śrīvatsa	Śrīvatsa	Śrīvatsa
Chaturmukha	..	Virāsina	Virāsina	Virāsīna	.	Vastu Kirna	Vastu Kirna	Vastu Kirna	Vastu Kirṇa
Sarvato-bhadra	Sarvato-bhadra	Manibhadra	Manibhadra	Manibhadra	..	Manibhadra	Manibhadra	Manibhadra	..
Maulika	..	Viśālaka	Viśālaka		Śrīviśāla	Viśāla	Viśā'a	Viśāla	Viśāla
Meruja	Meruka	Viśāla	.	Viśāla		Srugundhara	Srutiñjaya	Srutiñjaya	Srīdhara
Vijaya	Vijaya	Vijaya	Vijaya	..	Vijaya	Vijaya	Vijaya	Vijaya	Vijaya
Padmaka	Padmaka	..	..	..	..	Suślishta	Suślishṭa	Suslishṭa	Suśreshṭha
Sicha(?)	Siddha	..	..	..		Śatru-mardana	Śatru-mardana	Śatru-mardana	Śatru-mardana
Padma	..	..	..	..	Pushkala	Bhāgyapañca	Bhāgyapañca	Bhāgyapañca	
Pushpa	..	..	..	..					
Bhadra	Bhadra	Bhadra	Bhadra	Bhadra	..	Subhadra	Subhadra	Subhadra	Vimāna-bhadra
Śiva	Siva	..	..	..	..	Mānava	Mānava	Mānava	..
Veda	Veda	..	..	..	..	Sugrīva	Sugrīva	Sugrīva	Sugrīva

Mānasāra	Maya-matam	Śilpa-ratnam	Iśānaśiva Gurudeva	Sūprabheda	Dīpta Tantra	Viśvakarma	Matsya Purāṇa	Samar-āṅgaṇa	Aparājita Pracchā
Kuladharana	Kuladharana	..	..	..	..	Harshana	Harita	Harsha	Harshaṇa
Sukhāṅga	Sukhānga	..	..	..	..	Karnikāra	Karṇikāra	Karṇikāra	Karṇikāra
Darbha	Darpa	..	..	..	..	Pādārddhika	Padārddhika	Padārddhika	Padādhika
Kauśika	Kauśika Śrībhadra	.	..	..	Śyāma- bhadra	Śrībhadra	Śyāma- bhadra	(Sama) Śyāmabhadra	Siṃha- bhadra
Saukhyaka	Saukhyaka	..	..	..					
Jayāla	..	Jayabhadra		Jayabhadra	Jayabhadra	Jayabhadra	Yajñabhadra	Yajñabhadra	Yajñabhadra
..	Garbha	..	..	..	..	.	..	..	..
Mālikā	Mālya	..	..	..	..	Nandana	Nandana	Nandana	.
Mālākṛiti	Mālyādbhuta	.	.		..	Siṃha	Siṃha	Siṃha	Siṃhaka
	Alaṁkṛita	.	..	Tṛidhāvṛitta	..	.	..	..	..
Dhanada	Dhana	.	.	..	..	.	..	..	Bhujaya
Dhānyāgara	..	..	..	..	..	..	..	.	..
Subhūṣaṇa	Sūbhūṣana	..	..	.					Samasūtra
Bhūshana(?)	..	..	..	..					
Harmya	..	..	..	..					
Sṛiṅgāra	..	..	..	.					
Pragata	..	..	.	.					
Droṇa	Drona	..	..	..					
Kharvaṭa	Kharvaṭa	..	.	.					
Śrirūpa	Śrirūpa	..	..	.					
Mangalya	Maṅgalya	..	..	.					
Śriviśāla	..	..	..	.					
Somārka	..	..	..	..					
	Srugākhya	..	..	..					
	Mangala	..	..						
	Mārga	..	..	..					
	Saubhadra	..	..	..					
	Sundara	..	..	.					
	Sādhāraṇa	..	..	..					
	Saumya	..	..	..					
	Iśvarakānta	..	..	..					

Table III

ADHISṬHĀNAS—BASES

Samarāngaṇa Sūtradhāra	Iśāna-śiva-Gurudeva Paddhati	Mayamatam	Silparatnam	Mānasāra	Sūprabheda	Kāśyapaśilpam	Vaikhanasā-gama	Aparājita Pracchā
Pādabandha	Pādabandha	Pādabhandha	Pādabandha	Pādabandha	Pādabandha	Pādabandha	Pādabandha	Pādabandha
..		Uragabandha		Uragabandha	..	..	..	..
Pratikrama		Pratikrama	.	Pratikrama	Pratikrama	Pratikrama	Pratikrama	Pratikrama
..	.	Padma Keśara	Ambhoja Keśara	Padma Keśara	.	Ambhoja Keśara	.	..
..	Pushkala	Pushpa-pushkala		Pushpa-pushkala		Pushpa pushkala	Pushpa-bandha	..
Śrībandha	Śrībandha	Śrībandha	.	Śrībandha	Śrībandha	.	Śrībandha	Śrībandha
..	..	Mañcha-bandha	Mañchaka-bandha	Mañcha-bandha		Mañcha-bandha	..	..
..		Śrikānta	Śrīkānta	Śrīkānta	.	Śrīkānta	..	..
.		Śrenībandha		Śrenībandha	.	Śrenībandha	..	..
.	.	Padmabandha	Abjabandha	Padmabandha	Padmabandha	Abjavandha	Padmabandha	
Vedībandha	Vapra-bandha	Vaprabandha	Vaprabandha	Vaprabandha		Vaprabandha	..	Vedībandha
..	.	Kalasa	Kalasabandha	Kumbhabandha	..	Kalasabandha	..	..
..	..			Vajrabandha	..	.	.	..
.	.			Śribhoga	.	Śrīkara	..	..
.	.			Ratnabandha	..	.	..	..
.	.	.	.	Pattabandha	..	..	..	..
..	..	.	.	Kukshibandha	..	.	..	..
..	.	.	..	Kampabandha	..	..	..	..
..	..	..	..	Kumudabandha		Nalinakānta	..	..
..	..	.	Pratimañchaka	19	..	Prati Sundara	..	..
..	..	..	Galamañchaka	..	..	..	..	..
..	..	..	Upānarahita	..	..	..	..	..
..	..	..	Skandakānta	..	..	Śrī Saundarya	..	..
..	..	..	Pratyutpan-nakrama	..	..	Skanda-skanda	..	..

Samarāṅgana Sūtradhara	Īśana-Śiva Gurudeva Paddhati	Mayamatam	Śilparatnam	Mānasāra	Sūprabheda	Kāśyapaśilpam	Vaikhanasāgama
	Nāgabandha Pratibandha Kapotabandha Chārubandha 8	Pratibandha Kapotabandha 14	Trikarna Nāgabandha Pratibandha 15		Chārubandha 4	Pratibandha Prativaktra Śrīkaṇṭhānta	Pratibandha Kapotabandha
Kshurabandha ..						Karirabandha Ambuja Kānta —21	

TABLE IV
UPAPĪṬHAS (PEDESTALS)

		Vedībhadra Pratibhadra	Vedīdhadra Pratibhadra	Vedibhadra Pratibhadra Mañcha Bhadra Each subdivided into 12		Pratibhadra	Vedikābhadra
		Subhadra Each sub-divided into 6	Subhadra Prati Sundara Kalyāna Karana 5			Saubhadra Pratisundara	Kapotāsana Padmāsana Bhadrāsana

Table V

PILLARS

Viśvakarma P. and Purāṇas	Bṛihat Saṃhitā	Samar-āṅgaṇa	Sūprabhedā-gama
Ruchaka	Ruchaka	...	...
Vajra	Vajra	...	...
Dvi-Vajra	Dvi-Vajra	...	...
Pralīnaka	Pralīnaka	...	...
Vṛitta	Vṛitta	...	...
...	...	Kuberakānta	...
...	...	Padmaka	...
. .	...	Ghaṭa-Pallava	...
...	...	Śrī-dhara	...
...	...	...	Śrīkara
...	...	...	Chandrakānta
...	...	...	Saumukhya
. .	...	...	Priyadarśana
...	...	...	Śubhaṃkarī
...	...	...	...
...	..	...	...
...	...	...	...
...	...	...	...
...	...	...	...
...	...	...	...

Kāśyapa	Śilparatna	Īśāna-Śiva	Mayamatam	Mānasāra	Atri Saṃhitā
...	...	...	...	...	Samāvṛitta
Chandrakānta	Chandrakānta	Chandrakānta	...	...	Ekānta
...	Vajrakānta	Vajrakānta	Saumya	...	Vajra
...	...	...	...	...	Priyadarśana
...	...	...	...	...	Gokarsha
Brahmakānta	Brahmakānta	Brahmakānta	Brahmakānta	Brahmakānta	Komala
Vishṇukānta	Vishṇukānta	Vishṇukānta	Vishṇukānta	Vishṇukānta	Nāgahasta
Śivacchanda	Iśakānta	Iśakānta	...	Śivakānta	Sphuṭavṛitta
Rudrakānta	Rudrakānta	Rudrakānta	Rudrakānta	Rudrakānta	Tālavṛintaka
Indrakānta	Skanḍakānta	Skanḍakānta	Indrakānta	Skanḍakānta	Caturaṅga
...	Bhānukānta	Bhānukānta	...	...	Avacchanda
...	Padmāsana	Padmāsana	Padmāsana	...	Caturavedika
...	Bhadrakānta	Bhadrakānta	Bhadraka	...	Vāyuparita
...	Padma	Padma	Padma	Padmakānta	...
Cchatrakhanḍa	Chitrakhanḍa	Chitrakhanḍa	Chitrakhanḍa	Chitrakarṇa	...
Śrīkanṭha	Śrībandha	Śrīkhanḍa	Śrīkhanḍa	Chitraskambha	...
Manḍa	Danḍapāda	Danḍapāda	Danḍa	...	Soḍashāsra
...	Śrī-vatsa	...	...	...	...
Kshepana	Paṭṭa-kshepana	...	...	...	...
...	Ratna	Ratna (?)	...	...	...
Śunḍupāda	...	Śunḍupāda	Śunḍupāda	...	Śalākāpinḍika
Pinḍipāda	...	Bhinḍipāda	Pinḍipāda	...	Pinḍipāda
Śrīvajra	...	Śrīvajra	...	...	...
...	...	Vajrapāda	Vajrastambha	...	...

Kāśyapa	Śilparatna	Iśāna-Śiva	Mayamatam	Mānasāra	Atri Saṃhitā
Gajapāda	. .	Ulukhalapāda	...	...	...
...	. .	...	...	Pālikāstambha	...
Kumbha	.	...	...	Kumbhastambha	...
...	...	...	...	Koṭastambha	...
...	...	...	...	Vīrakanṭha	...

TABLE VI

GOPURAMS

Śilparatna	Īśāna-Śiva-Guru	Mayamatam	Kāśyapa	Mānasāra
...	...	...	...	Śrī Bhoga
Śrīmandira etc.	Śrīmandira	Mātrakānḍa	Mātradaṇḍa	...
...	Śrī- Niketana	Chaturmukha	Chaturmukha	...
(No detail)	Sumaṅgala	...	...	...
...	Viśāla	Śrī-Viśāla	Śrī-Viśāla	Śri-Viśāla
...	Bhavyā	Śrīkara	...	Vishṇukānta
...	Paushṭika	Ratikānta	Kānta	Indrakānta
...	Sumanda	Kānta-Vijaya	Vijaya	Brahmakānta
...	Parikuṭa	Vijayaviśālaka	Vijayaviśāla	Skaṇḍakānta

Śilparatna	Īśāna-Śiva-Guru	Mayamatam	Kāśyapa	Mānasāra
...	Subhadra	Viśālālaya	Viśālālaya	Śikhara
...	Bhadrakalyāṇa	Vipratikānta	Vipratikānta	Saumyakānta
...	Bhadrasundara	Śrīkānta	Śrīkānta	...
...	...	...	...	2 others not mentioned
...	...	Śrīkeśa	...	...
...	...	Keśaviśālaka	Keśaviśālaka	...
...	...	Svastika	Svastika	...
...	...	Diśasvastika	...	...
...	...	Marddala	...	

TABLE VII

A. EKAŚĀLA HOUSES

Viśvakarma Prakāśa	Matsya Purāṇa	Bṛihat Samhitā	Samarāṅgaṇa Sūtradhāra	Mayamatam	Śilparatna
Dhruva	Not mentioned	Not mentioned	Dhruva	...	Dhruva
Dhānya	...	..	Dhānya	...	Dhānya
Jaya	...	...	Jaya	...	Jaya
Nanda	...	...	Nanda	...	Nanda

Viśvakarma Prakāśa	Matsya Purāṇa	Bṛihat Saṃhitā	Samarāṅganā Sūtradhāra	Mayamatam	Śilparatna
Khara	...	...	Khara	...	Khara
Kānta	...	...	Kānta	...	Kānta
Śrī-Pāda	...	..	...	...	...
Suvaktra	...	...	Sumukha	...	...
Durmukha	...	..	Durmukha	...	Durmukha
Krura	...	...	Krura	...	...
Supaksha	...	.	Supaksha	...	Supaksha
Dhanada	...	. .	Dhanada	...	Dhanada
Kshaya	...	...	Kshaya	...	Kshaya
Ākraṇḍa	...	...	Ākraṇḍa	...	Ākrānta
Vipula	...	...	Vipula	...	Vipula
Vijaya	...	...	Vijaya	...	Vijaya
...	...	...	Monorama	...	...
...	...	...	...	...	Sukha
...	...	...	...	...	Viśāla
...	...	...	...	...	Vyāsa
...	...	...	...	Daṇḍaka	...
...	...	...	...	Maulika	...
...	...	...	...	Svastika	...
...	...	...	...	Chuturmukha	...

B. DVIŚĀLA HOUSES

Viśvakarma Prakāśa	Matsya Purāṇa	Bṛihat Saṃhita	Samarāṅgana Sūtradhāra	Mayamatam	Śilparatna
Siddhārtha	Siddhārtha	Siddhārtha	Siddhārtha	Daṇḍavaktra	Siddhārtha
Yamasūrya	Yamasūrya	Yamasūrya	Yamasūrya	...	Yamasūrya
Daṇḍa	Daṇḍa	Daṇḍa	Daṇḍa	Merukānta	Daṇḍa
Vāla	...	Vāla	Vāla	Maulibhadra	Vāla
Gṛihachullī	Chullī	Gṛihachullī	Chullī	...	Gṛihachullī
Kācha	...	Kācha	Kācha	...	Yamadaivata
Śobhana	...	...	...	...	...
Kānta	...	...	...	...	...
Kumbha	...	...	...	...	...
Nanda	...	...	...	...	...
Śaṁkha	...	...	...	...	...
Sampuṭa	...	...	...	...	...
...	Dhana	...	...	...	...
...	Vajra	...	...	...	...

C. TRIŚĀLA HOUSES

Viśvakarma Prakāśa	Matsya Purāṇa	Bṛhat Samhitā	Samarāṅgaṇa Sūtradhāra	Mayamatam	Śilparatna
Hiraṇyanābha	...	Hiranyanābha	Hiraṇyanābha	...	Hiraṇyanābha
Sukshetra	Sukshetra	Sukshetra	Sukshetra	...	Sukshetra
Chulhi	...	Chulli	Chulli	...	Śūla
Pakshaghna	Pakshaghna	Pakshaghna	Pakshaghna	...	Pakshaghna
...	Viśāla	...	...	...	...

D. CHATUHŚĀLA HOUSES

Sarvatobhadra	Sarvatobhadra	...	...	...	...
Nandyāvarta	Nandyāvarta	Same as Mat. Purāna	Same as Mat. Purāṇa with many sub-divisions	Same as Matsya Purāṇa	Same as Matsya Purāṇa
Vardhamāna	Vardhamāna	...			
Svastika	Svastika	...			
Ruchaka	Ruchaka			...	...

Table VIII

STHĀNAS

Hayaśīrṣa Pañcharātra	Vishṇudharmmottara A	Vishṇudharmmottara B/In Vartanā	Samarāṅgaṇa Sūtradhāra	Mānasollāsa	Śilparatna
1. Riju	Rijvāgata	Rijvāgata	Rijvāgata	Riju	Riju
2. Ardhaṛiju	Anṛiju	Ardhyārdha	Ardhaṛiju	Ardharju	Ardharju
3. Sāchikṛita	Sāchikṛita	Sāchikrita-mukha	Sāchikṛita	Sāchi	Sāchika
4. Cchāyāgata	Cchāyāgata or Pārśvāgata	Pārśvāgata	.	..	...
5. Sarva (moving?)	...	Chalita	...	...	...
6. Bhittika			Bhittika or Pārśvāgata	Bhittika or Pārśvāgata	Bhittika or Pārśvāgata

Hayaśirṣa Pañcharātra	Vishṇudharmmottara A	Vishṇudharmmottara B	Samarāṅgaṇa Sūtradhāra	Mānasollāsa	Śilparatna
7. Ardhabhitti	Ardhavilocana or Ardhārdhākṣha	...	Ardhārdhaksha	Ardhākṣha =5	Dyardhākṣhi (=5 main)
8. Kshipti	...	Ullepa	...	...	...
9. Parāvṛitta	Parāvritta or Gaṇḍaparā-vṛitta	Gaṇḍapa-rāvṛitta	Parāvṛitta of 4 varieties =9		Parāvṛitta (a kind of Pārśvāgata)
	Pṛiṣṭhāgata	Pṛishṭhā-gata	20 Inter-mediate ones=29		Many inter mediate ones.
	Parivṛitta Samānata=9	... Nata Valita Uttāna Madhyārdha (12+1) corrupt reading)			

OTHER STHĀNAS

Vishṇu-dharmmottara	*Samarāṅgaṇa Sūtradhāra*	*Mānasāra and other South Indian works*
Vaiṣṇava	(of Men)	Sthānaka
Samapāda	Samapāda	Āsana
Vaiśākha	Vaiśākha	Śayāna
Maṇḍala	Maṇḍala	...
Pratyālīḍha	Pratyālīdha	Samabhaṅga
Ālīdha	Ālīdha	Ābhaṅga
	(of women)	Atibhaṅga
	Aśvakrānta	Tṛibhaṅga
	Uttama	
	Avahitthva	

Table IX

HANDPOSES (Mudrās)

	Agni Purāṇa *Asaṃyuktahasta*	*Vishṇudharmottara* *Asaṃyuktahasta*	*Samarāṅgaṇa S.* *Asaṃyuktahasta*
1.	Patāka	Patāka	Patāka
2.	Tripatāka	Tripatāka	Tripatāka
3.	Kartarimukha	Kartarimukha	Kartarimukha
4.	Ardhachandra	Ardhachandra	Ardhachandra
5.	Utkarāla	Arāla	Arāla
6.	Śukatuṇḍa	Guru ? (Śuka) tuṇda	Śukatuṇḍa
7.	Muṣṭi	Muṣṭi	Muṣṭi
8.	Śikhara	Śikhara	Śikhara
9.	Kapitthva	Kapitthva	Kapitthva
10.	Khetakamukha	Kha(e)tāka-mukha	Kha(e)takā-mukha
11.	Sucyāsya	Sucyardha	Sucyāsya
12.	Padmakośa	Padmakośa	Padmakośa
13.	Ahiśiraḥ	Mriga	Ahiśirah
14.	Mrigaśirsaka	Mrigaśirṣa	Mrigaśirsaka
15.	Kaṃmula (?)	Lāṅgula	Kangula(?)
16.	Kālapadma	Kālapadma	Kālapadma
17.	Catura	Catura	Catura
18.	Bhramara	Bhramara	Bhramara
19.	Haṃsāsya	Haṃsāsya	Haṃsāsya
20.	Hamsapaksha	Haṃsapaksha	Haṃsapaksha
21.	Sandaṃśa	Sandaṃśa	Sandaṃśa
22.	Mukula	Mukula	Mukula
23.	Urṇanābha	...	Urṇanābha
24	Tāmrachūḍa	..	Tāmrachūḍa

Samyukta Hastas

1.	Añjali	Añjali	Añjali
2.	Kapota	Kapota	Kapota
3.	Karkaṭa	Karkaṭa	Karkaṭa

	Agni Purāṇa	*Viṣṇudharmottara*	*Samarāṅgaṇa S.*
4.	Svastika	Svastika	Svastika
5.	Khaṭaka	Khaṭaka	Khaṭaka
6.	Vardhamāna	Vardhamāna	Vardhamāna
7.	Asaṅga	Utsaṅga	Utsaṅga (or Āsaṅga)
8.	Nishadha	Nishadha	Nishadha
9.	Dola	Dola	Dola
10.	Puṣpapūṭa	Puṣpapūṭa	Puṣpapūṭa
11.	Makara	Makara	Makara
12.	Gajadanta	Gajadanta	Gajadanta
13.	Vahistambha	Avahitthva	Vahisthala
	Other vardhamāna ones	Vardhamāna	Vardhamāna

NṚITYAHASTAS

Vide Nāṭyaśāstra and Abhinayadarpaṇa		
1.	Chaturasra	Chaturasra
2.	Vṛitta	Udvṛitta(?)
3.	Laghumukha	...
4.	Arāla	Arāla
5.	Khaṭakāmukha	Khaṭakāmukha
6.	Aviddha	Aviddhavakraka
7.	Vakrasaṃvyāsya	...
8.	Recita	Recita
9.	Ardharectia	Ardharecita
10.	Avahitthva	...
11.	Pallavita	Pallava
12.	Nitamba	Nitamba
13.	Keśavardhani	Keśabandha
14.	Latākhya	Latā
15.	Karihasta	Karihasta
16.	Pakṣodyata	Pakṣavañcitaka
	...	Paksapradyota
17.	Arthavardhita	...
18.	Garuḍapakṣa	Garuḍupakṣa

	Viṣṇudharmottara	*Samarāṅgaṇa*
19.	Daṇḍapakṣa	Daṇḍapakṣa
20.	Ūrddhvamaṇḍalaja	Urddhvamaṇḍalin
	. .	Urapārśva
21.	Pārśvamaṇḍalaja	...
22.	Pārśvārdhamaṇḍala	Pārśvārdhamaṇḍala
23.	Uromaṇḍala	Uromaṇḍala
24.	Iṣṭasvastika	Svastika
25.	Padmakauśīka	Padmakośa
26.	Avani	...
27.	Alipallava	Alipallavaka
28.	Ulvana	Ulvana
29.	Lalita	Lalita
30.	Balita	Balita
	...	Viprakīrnaka
	...	Svastika } (?) (See above)
	...	Padmakośa }
	...	Suchīmukha
	...	Uttānavañcita
	...	Muṣṭika
		=33 (or 31).

TABLE X

DṚIṢṬIS (Looks)

	Nāṭyaśāstra	Vishṇudharmottara	Samarāṅgaṇa
A.	*Rasadṛiṣṭi*		
1.	Kānta	Kā(Rā?)nta	...
2.	Bhayānaka	Bhayānaka	...
3.	Hāsya	Hāsya	Vikaśita
4.	Karuṇa	Karuṇa	...
5.	Adbhūta	Adbhūta	...
6.	Raudrī	Raudrī	...
7.	Vīra	Vīra	...
8.	Vībhatsa	Vībhatsa	...
		(9) Śānta	Sthira
B.	*Sthāyibhāvadṛiṣṭi* :—		
9.	Snigdha	Snigdha	...
10.	Hṛiṣṭa	Hṛiṣṭa	Hṛiṣṭa
11.	Dīna	Jihma	Dīna
12.	Kruddha	Kruddha	Bhrūkuṭi
13.	Dṛipta	Tṛi(Dṛi)pta	Dṛi(ṣ?)ta
14.	Bhayānvita	Bhīta	Vikṛita
15.	Jugupsita	Lajjita	...
16.	Vismita	Vismita	...
	...	(18) Saumya	
C.	*Sañcāribhāvadṛiṣṭi*		
17.	Śūnya	Śūnya	...
18.	Malina	Malina	...
19.	Śrānta	Śrānta	...
20.	Lajjānvita	...	...
21.	Glāna	Glāna	...
22.	Śaṁkita	Śaṁkita	Śaṁkita
23.	Viṣaṇṇa	Viṣaṇṇa	...
24.	Mukulā	Mukulī	...
25.	Kuñcita	Kuñcita	Kuñcita

	Nāṭyaśāstra	*Vishṇudharmmottara*	*Samarāṅgaṇa*
26.	Abhitapta	Abhitapta	...
27.	Jihvā (?)	...	Jihvā
28.	Salalita	Lalita	Lalita
29.	Vitarkita	Vitarkita	Vivakṣita (?)
30.	Ardhamukula	Nimilita	Saṃkucita
31.	Vibhrānta	Vibhrānta	Vibhrānta
32.	Vipluta	Vipluta	Vihvala
33.	Ākekara	Ākekara	...
34.	Vikosa (?)	Śoka	...
35.	Trastā	Trastā	...
36.	Madirā	(36) Madirā	...
			Urddhvagatā
			Yoginī
			Madhyasthā
			(18) or (19)
			Vıvikṣitā (?)

According to Agni Purāṇa :—

Rasadriṣṭi = 8 (not named)

Of Sthāyībhāva
and Sañchāribhāva = 28 (not named)

Total = 36 as above

TABLE XI

ICONOGRAPHY IN ĀŚVALĀYANA GRIHYA PARIŚISTA

Names of Grahas	*Adhidevatā*	*Pratya-dhidevatā*	*Vāhana*	*Implements*	*Material*	*Form of Pitha*	*Gotra*	*Habitation*	*Other characteristics—appearance.-dress-colour-ornaments flags*
Āditya	Agni	Rudra	Chariot of 7 horses	Padma, Abhaya	Copper	Round	Kāśyapa	Kaliṅga	Body like Javā flower, cloth red-garlands. Ornaments set with jewells, Aruna in flag.
Soma	Āpa	Umā	Chariot of 10 horses	Gadā, Pāsa	Crystal	Square	Ātreya	Around Jamunā River	Body full of nectar-white colour, white clothes-ornaments of pearls-yellow flag.
Maṅgala	Bhūmi	Skanda	Chariot of red rams.	Śakti, Śūla Gadā, Khadga,	Red Sandal	Triangular	Bharadvāja	Avanti	Fiery appearance, colour fiery, red clothes, coral ornaments, red flag.
Budha	Vishnu	Purusha	Chariot of 4 lions.	Khadga, Khetaka Gadā, Vara.	Golden	Arrow-like	Atri	Magadha	Peaceful face-colour of Kumkuma, ornaments of Marakata-yellow flag.
Viṛhas-pati	Indra	Brahmā	Chariot of yellow horses	Kamandalu, Akshamālā Vara	Do	Rectangular	Angirasa	Sindhu	Body like hot gold, yellow clothes, ornaments of Pushparāga, yellow flag.
Śukra	Indraṇī	Śakra	Chariot of white horses	Danda, Kamandalu Akshamālā Vara.	Silver	Five faced	Bhārgava	Bhojakaṭa	Body like silver, whitedress, ornaments of diamond, white flag.

Names of Grahas	*Adhidevatā*	*Pratya-dhidevatā*	*Vāhana*	*Implements*	*Material*	*Form of Pīṭha*	*Gotra*	*Habitation*	*Other characteristics—appearance dress-colour-ornaments flags*
Śani	Prajāpati	Yama	Ch of blue Gṛidhnas	Bow, arrow Abhaya	Iron	Bowshaped	Kāśyapa	Surāshtra.	Collyrium colour, blue clothes and ornaments of Nilastone, blue flag.
Rāhu	Nāga	Kāla	Ch of black Lions	Khadga, Charma Śūla, Vara	Lead	Sūrpashaped	Paithānasi.	Barbara	Pressing sun and Moon, colour of black cloud, tiger faced, black dress-ornaments of gomedha-black flag.
Ketu	Brahmā	Chitra-gupta	Ch. of charming pigeons	Gadā, Vara	Bronze	Flag like	Jaimini	Madhya-deśa	Form of kāma, appearance of smoky coloured flag, beautiful dress, ornaments of Vaidūrya, beautiful flag.

TABLE XII

Other Gods	*General Character*	*Vāhana*	*Hands*
Agni	Brow, beard & hair of piṅgala colour, 3 eyes, body — colour like that of Maru.	On goat.	Akshamālā, fire, Śakti, Varada.
Rudra	3 eyes, 5 faces moon on head.	Bull.	Kapāla, Śūla, Khaḍga, Khatvāṅga
Water (Āpa)	Female form, white colour, decorated with pearls.	Makara.	Pāśa, Kalasa.
Umā	Worshipped by all gods.	...	Akshasūtra, lotus, Mirror, Kamaṇḍalu.
Bhūmi	White coloured, divine ornaments, Sunlike garments.	4 elephants on backside.	Jewell vessel, grain vessel, of medicines, Lotus.
Skanda	Six faces, decoration of peacock feather, Red cloth.	Riding on peacock.	Cock, bell, flag spear.
Viṣṇu & Purusha			Gadā, lotus, Śaṁkha and Chakra.

Other Gods	*General Character*	*Vāhana*	*Hands*
Indra	Various ornaments.	Elephant with 4 tusks.	Vajra, Aṁkuśa.
Brahmā	Matted hair, 4 faces, wearing skin of black deer.	Sitting on lotus, Swan on side.	Akshamālā, Sruva, book, Kamaṇḍalu.
Indrāṇī	...	...	Twigs of Sanātana tree and Vara.
Śakra	Same as Indra above.	...	..
Prajāpati	Wearing sacred thread, one face.	Seated on swan.	Akshamālā, Sruva, book, Kamaṇḍalu.
Yama	Slightly bulky, black colour-ornaments.	Seated on buffaloe.	Daṇḍa and noose.
Serpents	Having tails like Kuṇḍalas, many hoods, bodies of females, horrible forms.		Akashasūtra.
Kāla	Terrific face, hair of serpents and scorpions.		Noose and Daṇḍa.
Chitragupta	Dress of Northerners, placid eyes.		Pen, Paper.

Other Gods	*General Character*	*Vāhana*	*Hands*
Vināyaka	3 eyes, face of elephant, sacred thread of serpent.	...	Book, Akshamālā, axe and Modaka.
Durgā	...	Riding on lion.	Śakti, Vāna, Sūla, Khaḍga, Chakra, Moon, Kheṭaka, Kapāla, Parasu, Kaṇṭaka.
Kshetrapāla (Cf. Paraskara Grihya Sūtra Reference)	Śyama colour—3 eyes-upraised hair, Good teeth, frowned face, Nūpura on feet, Girdle of Serpents on body, skull garland with bells, Loin cloth of serpents, moon on head, nacked, brilliant colour.		Śula, Vetāla, Khaḍga and Dundubhi in right hand—Kapāla, bell, Charma and bow in left hand.
Vāyu	Grey colour.	Riding on running deer.	Flag and Vara.
Ākāsa	Like blue lotus, wearing black garments.		Digit of moon, Kheṭa.

Other Gods	*General Character*	*Vāhana*	*Hands*
Aswins	Bodies of two joined. Two females on sides holding vessels of jewells and wearing white clothes.		Medicine and book.
Lokapālas:			
Indra	Golden colour, Thousand eyes.	Riding on Elephant.	Vajra.
Agni	Red colour, three eyes.		Akshasūtra, fire, śakti, varada.
Yama	Red coloured.	Riding on Buffaloe.	Daṇḍa and Noose.
Nirṛiti	Blue coloured upraised hair (beloved of Kālikā).	Riding on a a man.	Khaḍga and Skin.
Varuṇa	Garments red, Golden coloured.	Riding on Makara.	Snake and Nose.
Kuvera	Golden colour, master of Nidhis.	Riding on horse.	Holding arrow or spear.
Īśāna	Crystal colour.	On Bull.	Vara, abhaya, Śūla, Akṣasūtra.

ADDENDUM

An altogether new line of investigation of Indian sculptures has been struck recently by Alice Boner ("Principles of Composition in Hindu Sculpture"), a portion of whose introductory remarks is given below.:—

"The Orissan text, whose title is 'Śilpa Prakāśa', is written in Sanskrit and profusely illustrated with line drawings. (The editing of the book is under preparation). It is presumably of the 10th or 11th century A.D. and deals with the construction of a temple to the Devī. In its outlook it is entirely based on Tantric doctrines. Between the detailed descriptions of all architectural elements of the temple, it also gives the Dhyānas for the images to be carved on the walls, and together with Dhyānas, the diagrams and the exact rules for their composition These diagrams, dealing as they do with a later type of sculpture, are not quite identical with those that had resulted from my own investigations, but they have sufficient points of affinity to show that ultimately they depend on the same basic principles The very fact of their existence justified my assumption, that laws of composition, although not implicitly mentioned in other Śilpa Śāstras, had never been limited to the architectural elements, but had always included sculpture as well".

Alice Boner's book and the 'Śilpa Prakāśa', when edited, will, therefore, throw new light on the study of Indian Architecture and Sculpture.

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